Today's Animal Health

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Volume 9/Number 3 May/June 1978

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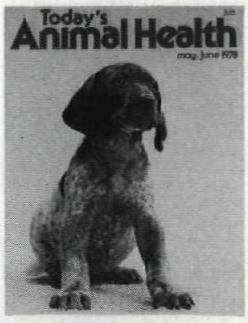
TODAY'S ANIMAL HEALTH is published to inform animal owners about responsible animal ownership and animal health. There are subscribers in all 50 of the United States and in 17 foreign countries. The magazine is used as a tool for client education by veterinarians and for educational purposes in classrooms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

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

FEATURES

DEPARTMENTS



COVER PHOTO:

Compliments of Norden Laboratories

dialogue

I have 8 Persians and 5 poodles. I live on the small island of Guam as you know so you can understand when I say that to me your magazine is priceless. Keep up the good work.

Merry Christmas and the best in the New Year.

Pauline Chapman and Gang
Guam

We find your magazine (other than being interesting and informative) enables us to be able to better communicate with our veterinarians — to everyones benefit.

After following your articles on FeLV by Dr. Alice Villalobos (issues Oct. through Feb.) we have been corresponding with her and are setting up a possible program in hopes of helping a problem we have had through the years with this illness.

We have worked with the Dr. Hardy program — but do not completely agree with his theory. Dr. Villalobos's observations and theory relate closely to our experiences.

We had not been aware of her work until reading her articles in TAH.

Thank you.

Mr. and Mrs. Jim Bruflat
Milwaukee, Wisconsin

I am an animal health technician at the United Emergency Animal Clinic in Campbell, California. We receive Today's Animal Health at the clinic. The doctors there often use articles from your magazine to illustrate, enlighten, and educate clients about their pet's problems. You succeed in explaining complicated subjects in layman's terms. Thank you for your informative articles.

Jean Campbell
Monta Vista, California

Enclosed find my check for $4.50 for a one-year subscriptionn to Today's Animal Health.

I was reading your magazine at a friend's house and found it most informative. Thank you.

Barbara Brunk
Waverly, New York

I can't wait for your magazine! I'm very excited. Please send as soon as you can. Thank you.

Mrs. Kaye Williams
Miami Florida

Wish you'd write more about other pets besides cats and dogs. I have goats and chickens and hamsters and ducks. I like lots of pictures too.

Denise Mitchell
Vermillion, South Dakota

Letters to this column should be sent to Box 5181, Fullerton, CA 92635.

worth reading

Ms. Veterinarian
Mary Price Lee
Philadelphia: The Westminster Press, 1976
$7.50

A small but mighty volumn. Contains a wealth of practical information for the girl "bitten by the vet bug." This would be a must for careers classes, but is well and interestingly written for the more casual reader.

Jone's Animal Nursing
By: R. S. Pinninger
New York: Pergamon Press, 1976
$18.00

An English textbook designed for use in the two year training course for Animal Nursing Auxiliaries, this is an invaluable reference book for anyone raising animals. Thoroughly updated and revised, the information is current, clearly presented and well-indexed. Each article is written by a specialist or expert in that particular area. A sampling of the chapter headings follows: Anatomy and Physiology; The Principles of Animal Management, Hygiene and Feeding: First Aid; Theory and Practice of Nursing; The Veterinary Professions; and many others.

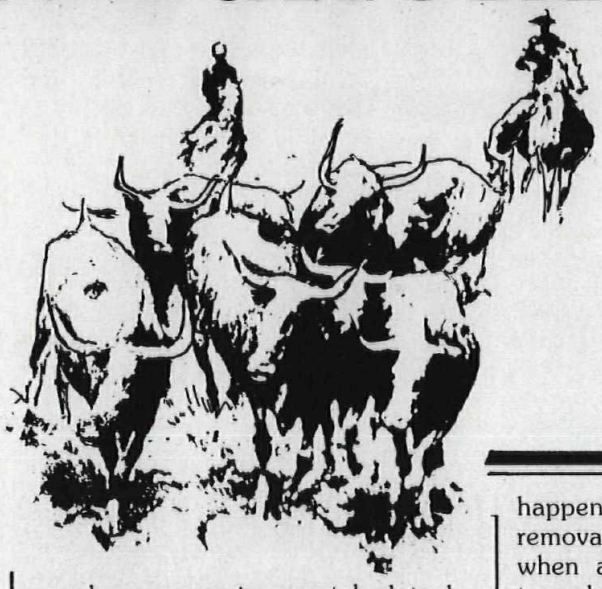
Abe and Me
By: Jack Murphy
San Diego: Joyce Press, Inc., 1977
$9.95

Jack Murphy has been the sports editor-columnist for the San Diego Union for 25 years. These vignettes of his life with his beloved dog, Abe of Spoon River, appeared in the newspaper over the 13 years Abe was his companion. This is a delightful book — anyone who has loved, lived with and lost a dog will share with pleasure these experiences and emotions. Infectious humor and warmth pervade Mr. Murphy's prose. A fitting and unforgettable tribute to a wonderful comrade.

Knowing Cats
By: Alan Harvey
New York: Taplinger Publishing Company, 1978
$10.95

The subtitle of this one is "An Anthology for Unsentimental Cat-Lovers." Perhaps the adjective "realistic" would be more appropriate. Here are selections from writers as widely disparate as Swinburne and Damon Runyan — all having one thing in common, the intimate knowledge of *Felis domestica*. Wonderful pick-up reading. Who could resist H. Allen Smith's marvelous tale of the first cat owner of a major league baseball team or Adlai Stevenson's veto of the "Cat Bill"?

MONEY IN THE BANK: THE TEXAS LONGHORN



By Branley Allan Branson

The contributions of Spain to the culture and lore of America have been enormous, ranging from the enrichment of the language and architecture of the Southwest to the introduction of Christian religion and peach trees. Yet, of all the contributions made to the development of this continent few had a greater impact than the introduction and development of Spanish cattle.

The old axiom, "an army travels on its stomach," is equally true of the ranks of pioneers who establish settlements in new worlds. Thus, on his second voyage to the newly founded colony of Santo Domingo in 1493, Christopher Columbus carried with him a small consignment of ill-tempered Spanish cattle. The tough, adaptable animals thrived in the tropical climate and rapidly increased in numbers, providing the colonies not only with essential meat but also with leather and organic fertilizer for their food crops.

By 1521, Cortez and his gold-hungry conquistadores had firmly established themselves in Mexico. The Spaniards quickly discovered that the millions of Indians living there had decimated the supply of meat from the large food animals. Only the rulers — individuals like Montezuma — had an adequate protein diet. Obviously, if the Spanish intended holding their newly won empire meat had to be found, and found quickly.

Among the Hispanic officers was one Gregario de Villalobos. Acutely aware of the food shortage, Villalobos obtained a small nucleus of cattle from Santo Domingo and established them on the Mexican mainland. Under the watchful eye of Franciscan friars and their Indian converts, the Mexican herds increased. However, it shortly became apparent that these American cattle looked different from their ancestors in Spain. They were taller, heavier, had longer horns but still displayed irascible dispositions. Although the Spanish cattle owners probably did not understand what had happened, they had been practicing artificial selection. Any large population of animals, domestic or otherwise, is highly variable, that variability being an outward expression of the factors of inheritance. However, when a small sample is selected from the larger group and isolated elsewhere, the degree and type of variation becomes restricted to the genetic materials of the smaller group. Often, the small group begins to exhibit variation patterns that differ from their ancestors. In the case of the Spanish cattle brought to the New World, this phenomenon happened twice, once after the removal to Santo Domingo, and again when an even smaller sample was transplanted to Mexico. Thus, from these meager beginnings emerged the wild and colorful animal that became the legendary Texas longhorn.

By the late 1600s, the Spanish began expansion of their New World acquisitions into Arizona, New Mexico, California, and, more importantly, into Texas. Mission communities and extensive cattle ranches sprang up, making the longhorn a permanent resident of what is now Texas. Huge land grants were made to several Franciscan priests specifically for the purpose of raising longhorn cattle. The most famous of these land grants include that made to Padre Nicolas Balli, who founded the Santa Cruz Ranch, later to become the Dunn Ranch and still later the internationally famous Padre Island National Seashore, and the sprawling 75,000-acre Santa Gertrudis Ranch.

Although the longhorn thrived under Spanish tutelage in Texas, it wasn't until the real cattle barons entered the picture that beef became king. After the Texas War of Independence, Captain John King obtained Santa Gertrudis, increasing its size to over 800,000 acres. The whole operation was based upon raising longhorns, and the industry thrived.

The Civil War brought disaster to the area. Ranches and farms were abandoned, and millions of longhorns roamed wild across the landscape. Paradoxically, it was the hard times which stimulated the great cattle boom of the 20 years between 1870 and 1890. The last Indian war ever to be fought on Texas soil came to an end at Palo Dura Canyon, and Charles Goodnight stampeded over 10,000 head of bison from the canyon to make room for longhorns. Later, Goodnight joined forces with John Adair from England to establish massive ranches, men whose names have become synonymous with longhorn — Loving, Chisholm, Kleberg — and the cattle industry boomed.

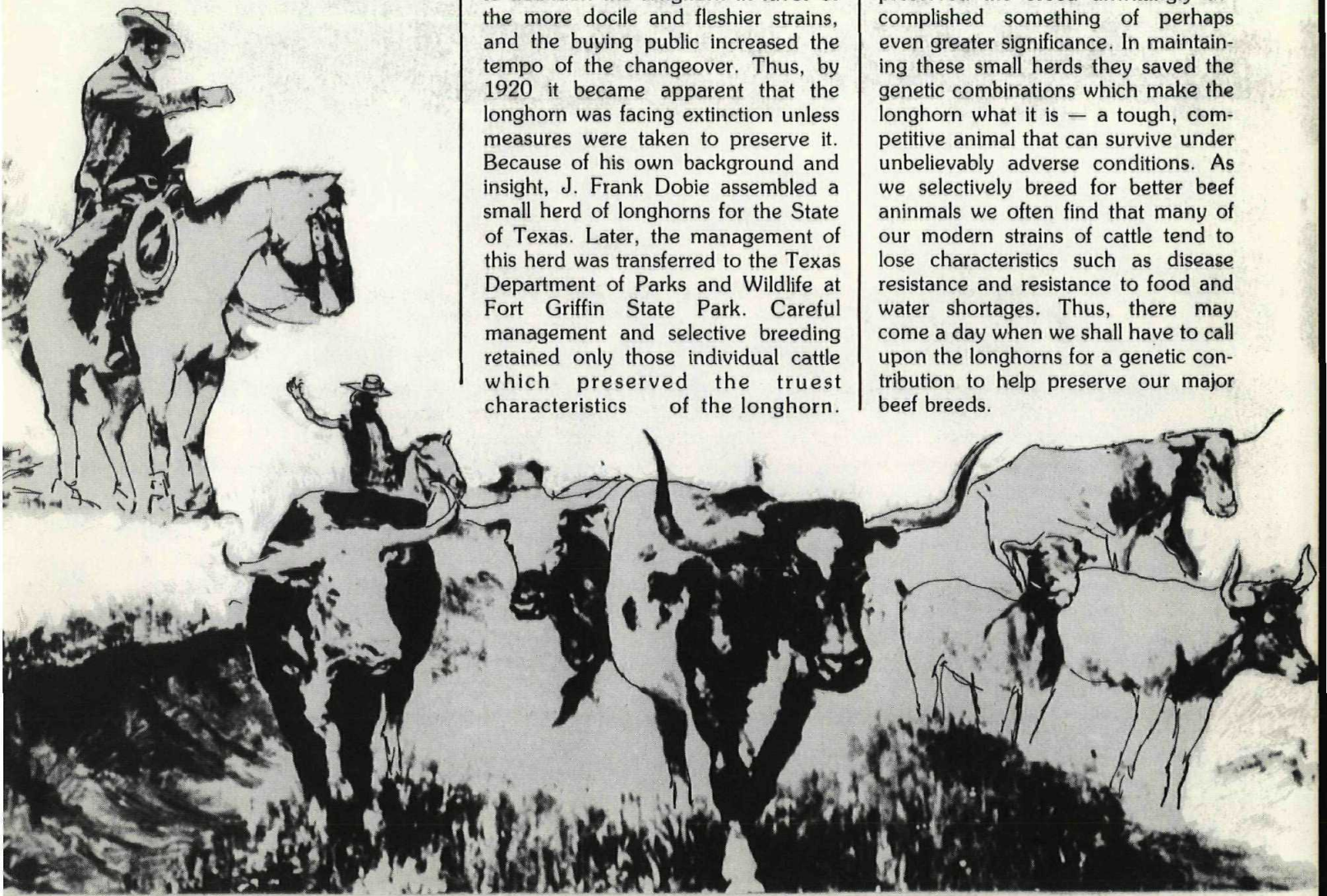
The noted cowboy writer, J. Frank Dobie, estimated that over ten million Texas longhorns were trailed northward during 1870-1880, 600,000 traveling up the Chisholm Trail alone in 1871. Although there were several important trails, the most famous were the Goodnight-Loving Trail and the Chisholm Trail starting at San Antonio and ending at rip-roaring Abilene, Kansas. Between these extremes lay over 800 miles of drought, cold, sparse forage, floods and Indian attacks. The longhorn was ideally suited for the harsh conditions of trailing; none of our more of less pampered modern breeds could have survived.

The northward-bound herds usually numbered between 2,000 and 3,000 head of range-bred cattle accompanied by 30 to 40 drovers. However, when passing through territory held by hostile Indians, up to five spreads often combined their herds and drovers for protection. Some of these drives included as many as 15,000 cattle and over 200 men.

By 1895 the colorful era of the longhorn was drawing to a close. The open ranges were being subdivided by fences, and the great northern trails were closing forever. Of greater importance, however, was the introduction of better beef breeds by several of the large spreads, notably the King Ranch. American breeders were quick to abandon the longhorn in favor of the more docile and fleshier strains, and the buying public increased the tempo of the changeover. Thus, by 1920 it became apparent that the longhorn was facing extinction unless measures were taken to preserve it. Because of his own background and insight, J. Frank Dobie assembled a small herd of longhorns for the State of Texas. Later, the management of this herd was transferred to the Texas Department of Parks and Wildlife at Fort Griffin State Park. Careful management and selective breeding retained only those individual cattle which preserved the truest characteristics of the longhorn. Gradually, the herd increased in size, up to a point, in fact, where it was subdivided, new herds being established in Possum Kingdom, Abilene, Copper Breaks, Palo Dura Canyon, Dinosaur Valley and Lyndon B. Johnson state parks. The herd at Griffin Park provides the magnificant mascots of the University of Texas.

Prior to the subdivision of the Dobie herd, in 1927, U.S. Senator John B. Kendrick guided a special appropriation through congress to be used for establishing a longhorn herd on the Wichita Wildlife Refuge in Oklahoma. The longhorns were added to the bands of another animal which played a significant role in American history, the bison. Today, both types of animals are thriving in the Wichitas, and thousands of visitors annually come to visit them.

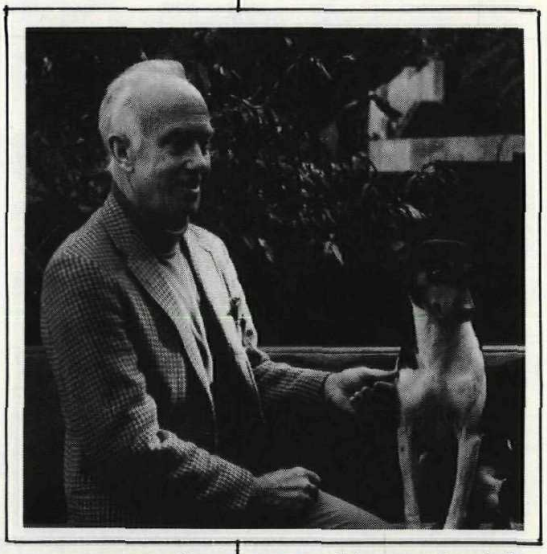
Preservation of the longhorn breed started off to protect a magnificent animal from extinction, an animal which had played an exceptionally important role in the forging of America. However, the farseeing men who preserved the breed unwittingly accomplished something of perhaps even greater significance. In maintaining these small herds they saved the genetic combinations which make the longhorn what it is — a tough, competitive animal that can survive under unbelievably adverse conditions. As we selectively breed for better beef aninmals we often find that many of our modern strains of cattle tend to lose characteristics such as disease resistance and resistance to food and water shortages. Thus, there may come a day when we shall have to call upon the longhorns for a genetic contribution to help preserve our major beef breeds.



ask Dr. Smithcor's

Q **Iron deficiency anemia was discovered in one of our caged cats when we had it autopsied. We've lost a lot of cats to "wasting disease" which was simply, I suppose, anemia. Cat foods are advertised as complete and nutritious, but it seems that the manufacturers are simply not putting enough iron in their formulas. Do you have any comment?**

A Anemia can have numerous causes such as nutritional deficiency, infection, toxic chemicals, drugs, parasitism, etc. Except for growing kittens raised almost exclusively on cow's milk, however, iron deficiency is very rare in cats, especially those fed a meat-based diet. Commercial cat foods contain several times the recommended daily requirement for iron, and their use as only part of the ration virtually eliminates the possibility of iron deficiency. Excess iron is toxic to cats, and supplemental iron should be given only under a veterinarian's direction — and then only after a specific deficiency has been proved to exist. I would suggest that you look for another cause, by discussing the problem further with your veterinarian.



Q **I have three dogs. Every time we go to the veterinarian for anything he examines the whole dog. It always turns out that the same two dogs have tonsillitis. Is tonsillitis contagious? If so, why does one never get it? Could it be an allergy? Should we get the tonsils out? Our doctor says we can but that it really isn't necessary at this point.**

A Tonsillitis is usually caused by *Streptococcus,* but the organism is also found in the tonsil crypts of many dogs that never show signs of disease. In some cases it is contagious, in others not. In some dogs it assumes a chronic form and causes intermittent swelling without the distress of the acute form. Antibiotics and pain killers are useful if the dog is bothered temporarily, but since your dogs do not seem to be uncomfortable I am inclined to agree that they do not need their tonsils out at this time. An allergy seems unlikely, but it cannot be entirely ruled out. If they are young they might even outgrow it. If it should begin to interfere with their eating or become painful, tonsillectomy can be considered. Incidentally, examining the whole dog at each visit is the sign of a good veterinarian.

Q **My Irish Setter is continually digging holes in the garden. How can I get him to stop?**

A The proper approach to this problem — and any other type of misbehavior — is to determine the cause and remove it rather than punish the dog. Punishment in fact may only make the problem worse or create other problems. A dog whose owner does much digging in the garden in sight of the dog may only be mimicking his owner. To prevent this, don't do your gardening when the dog is around. If he is digging for gophers, get rid of the gophers. If the yard is small and he digs near the fence, he may need to be taken to a place where he can run occasionally. If there is no shade on hot days, he may be digging cooling holes and shade should be provided. If he jumps on guests and is punished by putting him outside, he may indicate his frustration by digging. In such cases, one solution may be to forewarn guests and allow the dog to greet them, but teach the dog to go on command to lie on his own rug in another room. If digging is simply a way of relieving boredom or tension for your dog, playing with him for 15 minutes a day may help, as may teaching him to respond to simple commands.

Q **I just noticed that my cat's gums are real white and they used to be pink. Is this anything to worry about?**

A Yes, you should be concerned enough to see your veterinarian about it right away. At least if there are any other signs of illness such as shortness of breath, depression, lethargy or loss of appetite. This is a cardinal sign of anemia, which may be due to blood loss or any of several serious diseases. If the whiteness actually appeared very suddenly, it could be due to loss of blood from a wound or internal bleeding. More likely, however, the process has been gradual and you just happened to notice it now. Two fairly common causes of anemia are hookworm infection and a blood parasite that causes feline infectious anemia. Both of these and other possible causes should be looked into by your veterinarian.

Q **I have a Persian cat. Should I worry about her getting hairballs?**

A All cats swallow some hair in the process of grooming, and longhaired cats are likely to ingest more than those with short hair. The hair is usually passed in feces, or vomited as tubular masses. If your cat coughs these up easily and has no other signs of illness, there is rarely anything to worry

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The Borden Guide for the Care and Feeding of Orphan and Rejected Kittens

When Is It Necessary To Rear Kittens By Hand?

- When the queen rejects and refuses to care for her offspring.
- When the queen is killed, lost or becomes ill after her kittens are born, before they are old enough for weaning.
- When the queen's milk is inadequate. (In some cases it may be advisable to supplement the milk produced by the queen.)
- When there is an infection of the milk-producing glands of the queen or the milk supply dries up prematurely.
- When one or more kittens are too weak to nurse.
- When the kittens have been delivered by Caesarean section. (Hand rearing may be the only way their lives can be saved.)
- When kittens become ill shortly after birth. (Bottle feeding is often essential, if the kittens are to recover.)

Is It Difficult To Rear A Kitten By Hand?

Not if you are willing to supply time, patience, and tender loving care.

There are a few guidelines to follow if your efforts are to be successful. These include providing the right environment, feeding a balanced formula, and practicing some sound rearing principles.

To Provide the Right Environment

Avoid chilling.

Avoid overheating.

Keep the kittens warm and comfortable. Chilling is perhaps the greatest threat to the survival of a newborn kitten. Overheating, and the resultant dehydration, poses just as serious a threat to a kitten's well being. A constant source of warmth, without chills, or drafts, may be achieved through the use of a simple, easy-to-make kitten incubator.

Divide a plastic hat box, or other suitable container, into small compartments. Allow one "private room" for each kitten. Make sure that the sides of the compartment are too high for the kittens to climb. This arrangement, at least for the first 2 to 3 weeks, discourages the kittens from sucking on each other's tail and ears. It also helps you check each kitten's progress, particularly the condition of the stool. The stool is an excellent indicator of whether you are feeding too much formula. It also provides an early warning sign of infection.

If the queen is alive, let the kittens stay with her except for feeding (after the first feedings of colostrum or first milk). The queen can provide the kittens with warmth and take care of their eliminations. If a neutered cat is part of the household, he should be encouraged to act the role of the substitute mother.

The source of heat for the incubator can be a small electric heating pad ...with the thermostat set on low. Protect the pad with a waterproof plastic

or rubber covering. A towel may be pinned close to the edges of the pad to keep the kittens from crawling between the cover and the pad. The bottom of each compartment should be lined with absorbent bedding — a clean, soft diaper, a folded newspaper, or several layers of paper towel.

Change the pad as often as necessary. Be sure to check the condition and quantity of the kitten's stool before you make the change. A further note. Arrange the electric pad so that approximately 1/2 to 3/4 of the unit *rests against the side of the container* and the remainder is on the floor of the compartments. In this way the kittens can snuggle up to the heat but can move to the unheated section when they are too warm. If a heating pad is not available, a hotwater bottle can be substituted. Needless to say, there are many disadvantages to this arrangement.

An overhead, infrared lamp, with a thermostatic control, may also be used as a source of heat.

Temperatures should be set (plus or minus 5 degrees) according to the following recommendations. Try to maintain an even temperature — not too hot or too cold, and be sure there are no drafts.

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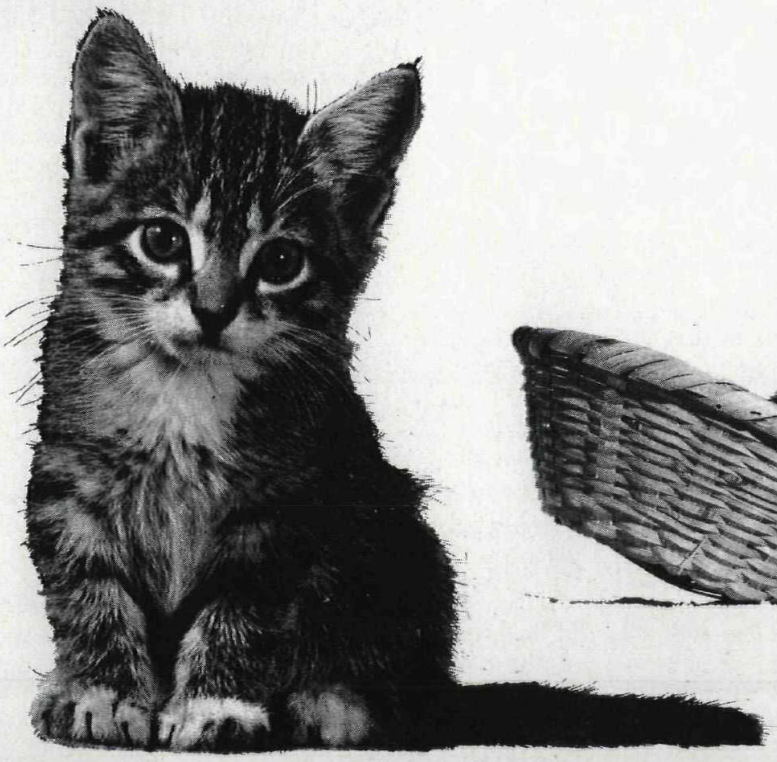
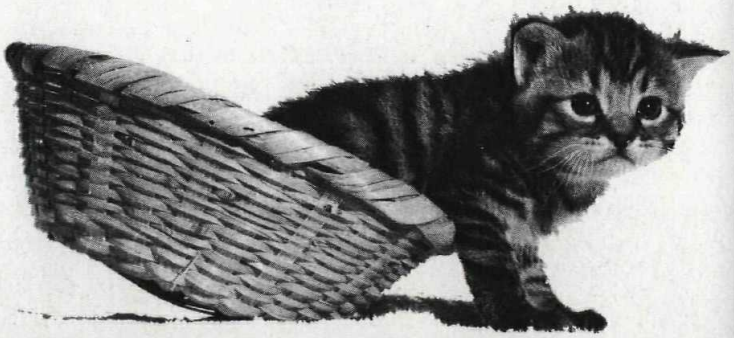




The Borden Guide for the Care and Feeding of Orphan and Rejected Kittens

TEMPERATURE GUIDE FOR REARING ORPHAN KITTENS

Recommended Temperatures	Age of Kittens
88° to 92° F	Birth to 7 days
80° to 85° F	8 to 14 days
80° F	15 to 28 days
75° F	29 to 35 days
70° F (room temp.)	35 days and thereafter

Dehydration can be a problem if the environment is too dry. A minimum of 50% relative humidity is desirable, so try and keep kittens in a humid area or keep a pan of water close to the kitten box to keep the air moist.

EQUIPMENT SUGGESTIONS

Equipment requirements for the hand rearing of kittens are minimal. For feeding you will need doll nursing bottles and a supply of soft, anti-colic rubber nipples. You can also use medicine (eye) droppers or disposable 2 cc. syringes with the needles removed.

An accurate scale should be available to weigh the kittens (once a week or more) to determine the right amount of KMR (Borden Kitten Milk Replacer) to feed. The scale can also help you check on the kittens' progress. A steady increase in weight is a sign of normal growth and development.

USE THE RIGHT FORMULA — ADHERE TO A SENSIBLE FEEDING SCHEDULE

Thanks to Borden's KMR you don't have to worry about what to feed. Just how much and when. KMR is the best formula you can use — short of queen's milk. KMR is ready to feed. All you have to do is shake well, open, and pour.

KMR is similar to queen's milk in composition. It is highly palatable, and is carefully formulated to meet the specific nutritional needs of infant and growing kittens.

KMR is highly digestible. It is a carefully balanced blend of vegetable fats, milk and egg solids. The formula is fortified with minerals and vitamins.

KMR — THE IDEAL SUBSTITUTE FOR QUEEN'S MILK

Nutrient	Queen's Milk (%)	KMR (%)
Fat*	28.1	25.0
Protein*	40.6	42.2
Carbohydrate*	27.8	26.1

**Concentrations of these nutrients are on a solid basis.*

If you run out of KMR, the following substitute formula may be used until you can replenish the supply:

Whole cow's milk — ½ cup
Hard boiled egg — 1
Powdered calcium carbonate - 1 teaspoon
Liquid vitamins (per package directions)

Mix in electric blender to make a smooth formula.

Refrigerate balance of formula between feedings.

The calcium carbonate and liquid vitamins should be available from your veterinarian.

FEEDING TIPS

Warm the KMR formula to body temperature – approximately 100° F.

You can feed the kitten with a doll's bottle, eye dropper or syringe.

Older kittens can be fed by spoon.

When they are 3 to 4 weeks of age, they will lap milk from a saucer or small bowl. It is not necessary to feed large kittens more than 3 times a day....at 8-hour intervals. Smaller kittens do best when they are fed every 6 hours. Weak or small kittens should be fed every 3 to 4 hours.

If at all possible, kittens should receive at least two days' feeding of their mother's milk. The first milk, or colostrum, provides extra nutrition and temporary immunity against some diseases.

Hungry kittens will whine. If undernourished, they will become thin, listless and tend to suck on their littermates.

A healthy kitten is sleek and happy. It has a plump little belly.

A contented, well-nourished kitten is generally quiet between feedings.

Feed the kitten an amount of KMR formula sufficient to enlarge the abdomen. (Not overdistended or bloated but just filled out.) When in doubt about how much to feed — underfeed. It is best to feed a kitten too little rather than too much — especially for the first 2 or 3 days. By the 4th or 5th day, it is reasonably safe to bring the kitten up to a full feeding — as outlined in the feeding chart below.

RECOMMENDED TOTAL DAILY RATION PER KITTEN*

Weight of Kitten (ounces)	Amount of KMR Per Kitten Per Day (tablespoons)
3	1½
4	2½
6	3
8	4
10	6
12	7
14	7
16**	9
24	10

*To assure an adequate intake of KMR, each kitten should be weighed at least once a week.

**Supplementary feeding of dry or canned food may be started when the kittens reach this weight.

NOTE: The amount of KMR formula recommended in the chart at above may be increased or decreased depending on the individual needs of each kitten to be fed. The volume of KMR should be divided into equal portions for each feeding.

For example:

a 3-ounce kitten requires 1½ tablespoons of KMR formula per day. This amount can be divided into 3 feedings (½ tablespoon each) given at 8-hour intervals.

When kittens are 3 to 4 weeks old (16 ounces or more in weight), KMR may be mixed with cat food to produce a gruel-like mixture. At this time, offer clean, fresh water free choice.

Start with a small amount of cat food in the mix and increase gradually until the kitten is on solid food. At this time, KMR may be used as the source of the kitten's daily milk supply. Kittens may be weaned completely from bottle feeding after 4 weeks. KMR may be saucer fed thereafter. Kittens may eat solid food before they learn to lap milk from a saucer.

From the 3rd week on, encourage kittens to exercise and play between

feedings. It may be advisable at this time to clip their nails to prevent injuries.

NOTE: Be sure to read carefully the KMR label for explicit feeding instructions and additional information about the care of orphan or rejected kittens.

Some Additional Feeding Hints

To bottle feed a kitten hold her with your left hand and place her on her stomach. Put a towel in front of the kitten so she will have something to grab and push. Gently open the kitten's mouth with a finger of your right hand and edge the nipple into its mouth as you gradually take your finger out. Place the nipple tip (syringe or eye dropper) on the top of the kitten's tongue. Don't hold the bottle at too great an angle. Let the milk flow slowly, and be patient. The kitten may fight the nipple in the beginning, but hunger will help teach the kitten this new trick.

If the kitten is too weak to be fed on her stomach, place her right side up — in your lap. Place her on her back in the palm of your hand. As you are feeding the kitten, keep her in an almost upright position. Encourage vigorous sucking by keeping a slight pull on the bottle during the feeding. Minimize the amount of air the kitten swallows by keeping the bottle angled upwards. And don't let the kitten nurse too fast. Do not force it to nurse. If milk ends up in the windfpipe it can cause "inhalation pneumonia."

If the flow of milk is not fast enough, the nipple hole can be enlarged with a heated needle.

Burping The Kitten

After each feeding hold the kitten upright against your chest or shoulder and gently pat or massage her back using a circular movement. This encourages the release of any air in the stomach.

SOME GOOD MANAGEMENT SUGGESTIONS

Two ways to tell if the kitten's development is normal are regular increases in body weight and firm bowel movements. If a kitten is adequately fed and gaining weight, she will be happy and quiet. If a kitten whines or cries, try feeding her before you call the veterinarian. In many cases, it is hunger rather than illness that is causing the discomfort. But if she refuses food, there may be a problem.

The condition of the stool may help in the diagnosis. If bowel movements are loose or watery, the cause may be overfeeding or illness. Try cutting the strength of the KMR formula in half by adding water that has been boiled and then cooled to room temperature. Reduce the total amount of formula fed until the condition is checked and the stool is firm again. Restore the formula to full strength gradually. Increase the amount of formula fed until normal levels are reached. If the loose stool condition persists beyond three or four feedings, have the kitten checked by your veterinarian.

Helping The Kitten Help Herself

For the first few weeks of a kitten's life, she relies on her instincts — and her mother — to urinate and defecate. The mother cleans the kittens after each feeding, and by licking the kitten's genital area, she stimulates the discharge of both urine and feces. When there is no natural mother, the foster mother must lend a hand. After each feeding, the external genitalia and the anal region should be gently swabbed with cotton or tissue that has been moistened slightly with warm water. The kitten's abdomen should also be massaged lightly.

Toilet Training

Kittens can be taught to use a litter pan when they are four weeks of age. A shoe box with several inches of litter or shredded newspaper makes a suitable litter box. After each feeding, place the kitten in the box or pan and scratch the litter with her paw. She may object at first, and she may even eat some of the litter. Don't scold her; leave her alone for a few moments. Before long she will learn the purpose of her visit and the rest of the training period will proceed easily.

Grooming

Grooming, in the form of gentle massage of the skin, may be done while the kitten's formula is being warmed. The grooming will help wake the kitten at feeding time, as well as help stimulate skin circulation. Use a soft fingernail or typewriter brush, and stroke the kitten from head to tail, following the direction the hair grows. Include the kitten's sides, back and abdomen. If you do not have a brush, use a soft, folded diaper or cloth. Should the kitten get soiled, a moist wash cloth, without soap, may be used to clean her. Then rub dry with a soft towel or cloth.

Do Not Disturb

Except when newborn kittens are being fed, burped, or cleaned, they should be left alone to rest. The less you handle them during the first two or three weeks, the better. Resist the temptation to play with them. It is best to wait until they are weaned from the bottle.

Do Not Overfeed

An underfed kitten, during the first few days, is less of a problem than one that has been overfed. In several days, when the kitten is less apt to have any digestive disturbance, place her on a full feeding schedule. And then let the kitten be your guide as to much to feed.

DO NOT CHILL.

DO NOT OVERHEAT.

Keep the kittens' box temperature as close as possible to those recommended.

AVOID DRAFTS

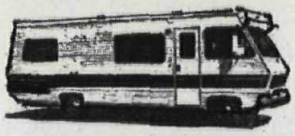
WATCH FOR SIGNS OF DIARRHEA. Regularly check the lining of each kitten's pen. If any abnormal condition persists, consult your veterinarian. He is your best source of advice for preventing or treating illness in the kittens.

Encourage kittens to play with any other pets in the household — including other cats. A neutered male cat often makes a good playmate for the growing kitten.

Unless you expect to raise cats, be sure to have any females spayed at 6 to 7 months of age. Male cats may be neutered in 7 to 8 months. At 4 weeks of age, have your veterinarian test the kittens' stools for the presence of parasite eggs. The test is done twice, at two-week intervals. If tests are positive, your veterinarian will advise you about having the kittens dewormed.

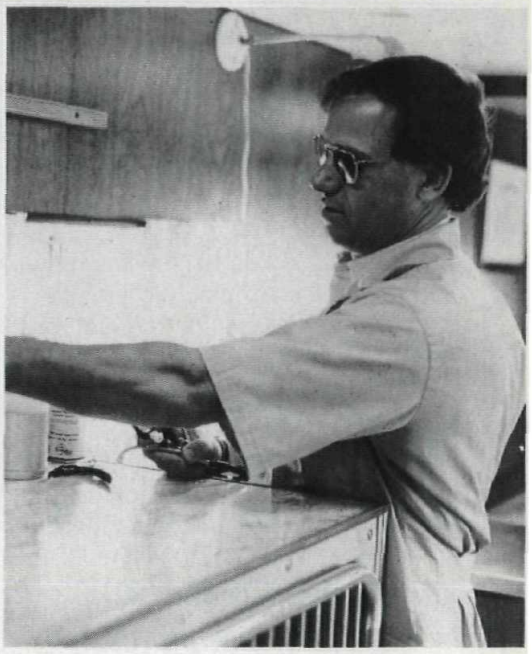
You should also consult your veterinarian about a vaccination program, since orphaned kittens may have les natural immunity to distemper and other diseases.

KMR may be used as a supplement for growing kittens, studs and show cats. It is an excellent food for aged, convalescing or undernourished cats. Breeders use KMR as a supplement for the pregnant queen before and after the litter is born.



TRAVELING

By Christine Wolff



If you're looking for the veterinary office of Dr. Jim Pennington, you'll need a calendar as well as a road map.

Depending on the day of the week, Dr. Pennington's office will be in Archer, Alachua, Starke, High Springs, or Lake Butler — all small north central Florida communities without adequate veterinary service.

All towns but one have no veterinarians at all, and sick animals must be driven out-of-town to the nearest clinic — usually 20-30 miles away in the larger cities of Gainesville or Jacksonville.

But Pennington, a young Gainesville veterinarian, has eased this problem with his successful "Town and Country Mobile Veterinary Clinic."

Housed in a large Winnebago recreational vehicle, Pennington drives his unique office to the needy communities, parks in an empty lot, plops down a welcome mat and sets up office practice for four to eight hours, depending on the town's needs.

Pennington got his van and his traveling veterinarian idea from an advertisement in a medical journal.

"A veterinarian in Wisconsin, who originally owned the van and designed it as his office, was trying to sell it," says Pennington. "It wasn't practical for him up there — he was snowbound most of the time."

Now the big van is filled with Florida sunshine, reflecting off the aluminum examination table and a tangle of rabies tags snapped on a built-in cage. Back in the 'kitchen', with a microscope, portable centrifuge and medical charts, a coffee pot bubbles. Country music twangs from the radio and competes with the whine of trucks passing on the highway.

Doc Pennington's been 'on the road' now since March, 1975 — and he loves it.

"I don't stay cooped up in one exam room with one little window for eight hours — it's a lot nicer being out in the country," says the native of the small Florida town of Jasper.

"My patients like it too — no hospital smells or crowded waiting rooms. They come in here with their tails wagging."

His patients come to the van with an array of problems — "coughs, itches, worms, — all the usual stuff," says the graduate of the University of Florida and Auburn. "Of course, the most common problems facing all veterinarians in Florida are parasites and skin disease owing to the heat and humidity."

Pennington classes his practice chiefly as small animals, but being in the heart of Florida horse country, "I do handle some horses, cows and hunting dogs."

The horse owners often bring their horses in to Pennington in trailers when they need treatment, but occasionally, Pennington will take the van on a "farm call" in the evenings on his way back to Gainesville.

The mobile veterinarian sees his clinic as an alternative to the problems encountered in setting up an office in a small town.

"A veterinarian can't afford to go into these little towns, buy some land and build a hospital — there's not enough business. But I can come in and spend a half

ANIMAL DOCTOR

day in one town, and a half day in another and see up to 30 patients a day."

The clinic's route covers five towns in Alachua, Union and Bradford Counties — just three of fourteen Florida counties without adequate veterinary service. Using Gainesville as his hub, Pennington's stops fan out in a 30-mile driving radius. The 28 foot van clocks about 400 miles a week. Gas mileage in the air-conditioned, self-generated vehicle averages about five miles to the gallon.

"I can't make house calls because my fuel costs are too high and my schedule's too tight," says the clean-cut Pennington. "I have to be on time — there's no receptionist to say 'he'll be in in a minute.' "

To 'break in' as a mobile veterinarian, Pennington contacted local city managers to inquire about ordinances and licenses, and then "pulled up in an area and waited. I have to rely on word-of-mouth for my business."

And the people in Alachua and Archer must be talking because the 30-year-old Pennington has built up a large clientele in a short period of time. "Sometimes people are lined up when we arrive and still waiting when we leave."

Pennington's younger sister, Juda Lois, does her brother Jim's bookkeeping and provides an extra set of hands in handling the animals.

"There's a trick to handling the animals. With cats, for example, the less restraint put on them, the better they behave," she says cradling a foxhound puppy against her plaid smock.

"Town and Country" is affiliated with Gainesville's Northwest Animal Hospital for emergency treatment and can be reached on the road by mobile telephone. Pennington can perform minor surgery, such as suturing lacerations, right in the van.

Relaxing on the van's leather couch, the country doctor scratches his head as he remembers experiences from his year as a traveling animal doctor.

"I rarely do anything real unusual — I gave a blood transfusion to an anemic bobcat once," says Pennington.

"What's funny is when people come in thinking we treat humans. They mistake us for a free eye clinic or blood bank. Little kids with sick puppies and no money will also wander in here more readily than in a regular office," he shrugs. "But I have to treat their pets — don't want them to grow up thinking veterinarians are mean." Pennington figures he work 70-75 hours a week, including servicing the van and working one night at the Animal Shelter spaying adopted animals.

"I can't figure out how to quit," he laughs. "I can't expand my practice unless I work between midnight and sunrise and I don't want to neglect any of my towns either."

"But I enjoy it."

Dr. Pennington unfolds his 5'10" frame from the couch's depths and ends his coffee break as the shoulders of a large black Labrador fill the van's doorway — Chico, from Starke, is here for his shot.

The Eternal Itch.

The Never-Ending War Against Pests That Prey on Pets.

By Gene Bylinsky

The life of luxury available to the great American pets, the dog and the cat, is a never-ceasing cause of wonder. The lucky members of the 60-million-plus American household canine and feline corps are pampered, perfumed, fed delicacies, showered with love, gifts, and medicines, and even entertained in some unusual ways.

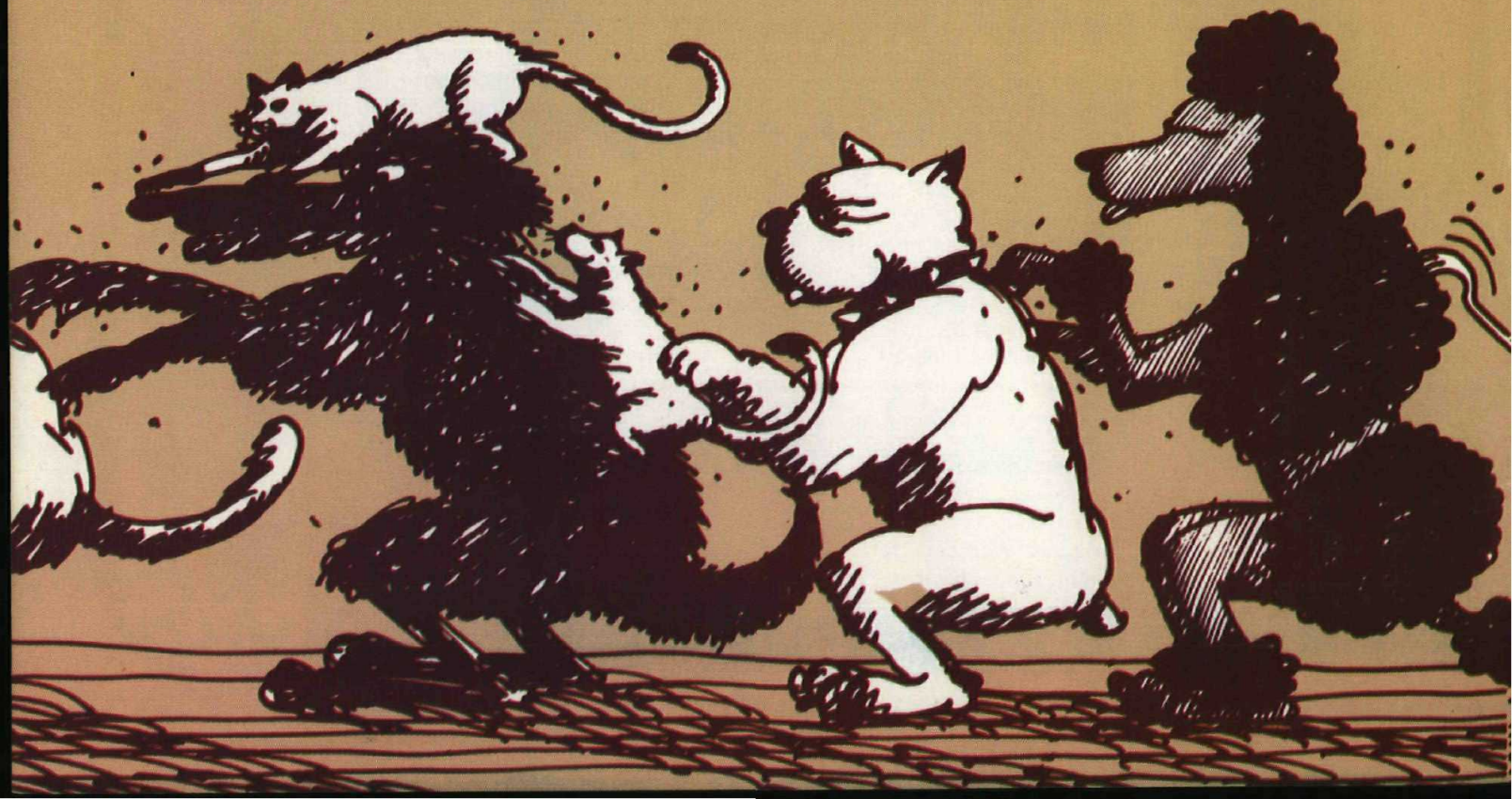
And when a beloved pet dies, it sometimes gets buried in a fancy casket, sometimes even with a burial service or a ceremony. On Memorial Day, throngs jam pet cemeteries, decorating them with fresh flowers and wreaths.

Buried under this anthropomorphic avalanche of worship and adulation of the dog (and only to a lesser degree, of the cat) are some sobering, and fascinating, facts about the pests that prey on them. These pests create a problem of growing concern to public health officials as they become increasingly aware of the real and potential health hazards to man. What complicates the solution of the problem is that in dealing with the pests of pets we are dealing with the relatively little-explored physiologies of the many creatures involved.

Man's experience in waging war against insects spans thousands of years now and we don't seem to be winning the war, only holding our own. The physiology of insect pests can be complicated enough. Even the supposedly lowly flea presents some surprises, as we shall see in a moment. If that weren't enough, the pests that attack dogs and cats don't fit into a simple, single class, order, suborder, family, or genus — they span the phyla. They include ticks, which aren't insects but members of the class Arachnida, related to scorpions and spiders. They also include helminths of many species belonging to the phyla Nemathelminthes (roundworms) and Platyhelminthes (flatworms).

As is common in biology, the paths of these unrelated creatures cross at some curious angles. For instance, that aside from being a nuisance to both the pet and its owner, the flea enters into a strange symbiosis with the parasitic helminths, serving as an intermediate host for their infective stages.

ILLUSTRATIONS BY JOHN PLUNKETT



The flea is a persistent pest. Highly mobile species of the order Siphonaptera, fleas are active and greedy feeders, often passing the blood so rapidly that whole blood cells are present in their feces. The flea's mouthparts are well-developed and highly adapted for piercing and sucking. Men have carefully divided the 2,000 or so different kinds of fleas into 200 genera and 15 families and have given them both scientific and common names that imply a strict host specificity. There are the *Ctenocephalides canis* and the *C. felis*, which are the most cosmopolitan in their distribution. There is also the rodent flea, *Leptopsylla segnis;* the sticktight flea, *Echidnophaga gallinacea;* the human flea *Pulex irritans*, and many others.

This careful labeling of the fleas implies that they are confined to specific hosts. Being unaware of these man-made designations, however, the fleas themselves happily hop from one host to another, so that a single dog not infrequently is infested with dog fleas, cat fleas, rat fleas, and sticktight fleas. Such indiscriminate travels obviously make the flea a prime candidate as a disease vector.

A flea undergoes a complete metamorphosis in its developmental cycle — from egg to larva to pupa to adult. The female usually lays her eggs in the environment of the flea-infested host — either on the host itself or in its lair. She may lay several hundred eggs, sometimes as many as 1,000.

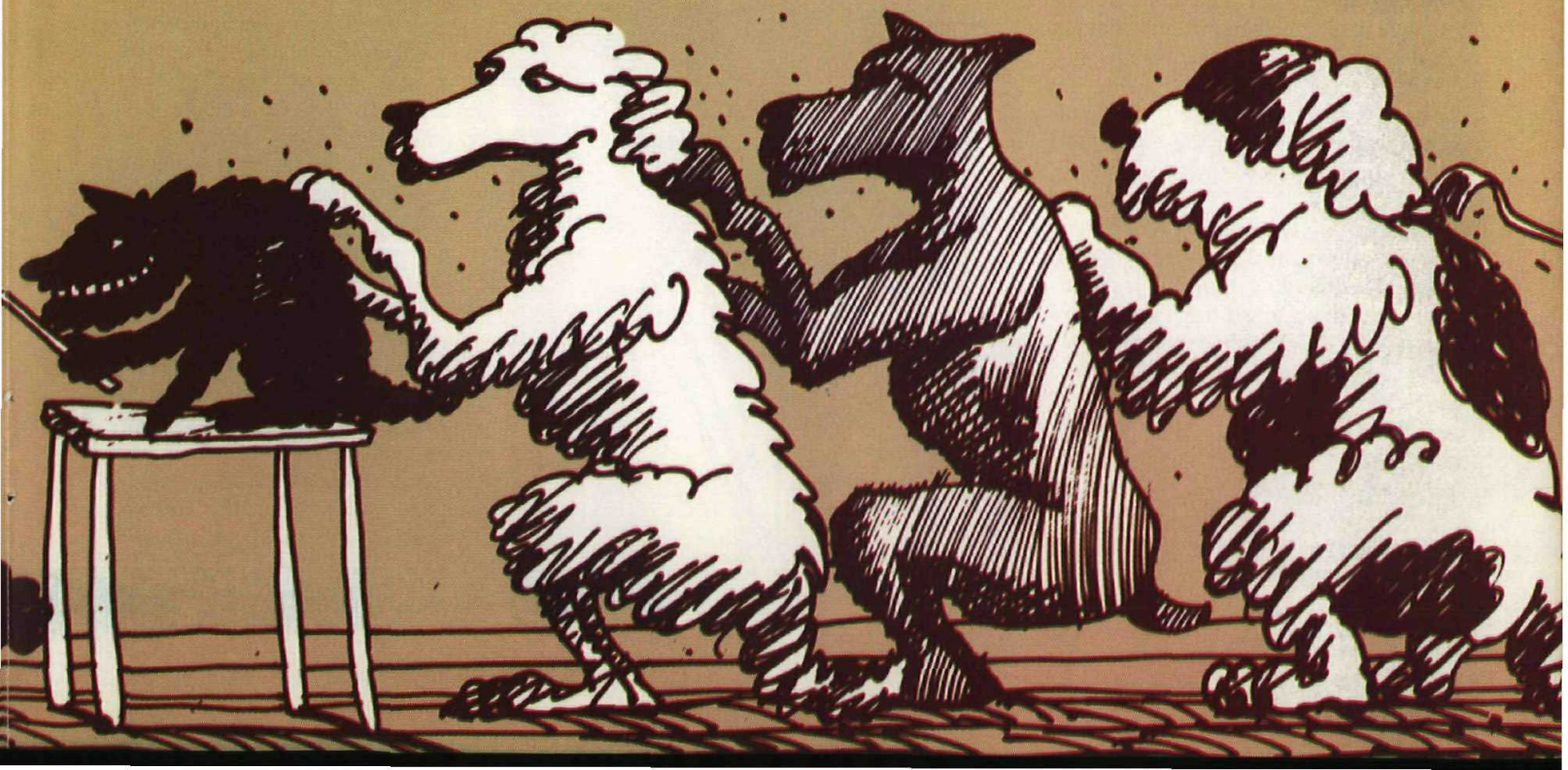
The slender, bristled, wormlike larvae equipped with masticatory mouthparts, hatch in anywhere from two to 12 days. The larvae develop in the organic debris on which they feed, sometimes even devouring dead adult fleas. A number of species need blood for growth; this they get from the bloody excrement deposited by adult fleas. After three molts, the fully grown larva spins a cocoon of silk produced by its salivary glands. The larva becomes a quiescent pupa, hiding mummy-like inside the pupal case whose sticky outside layer attracts dust and debri, cleverly camouflaging the cocoon. Ambient temperature usually determines the duration of the pupal stage, but the time needed for the completion of the flea's life cycle may extend from 30 days to six months.

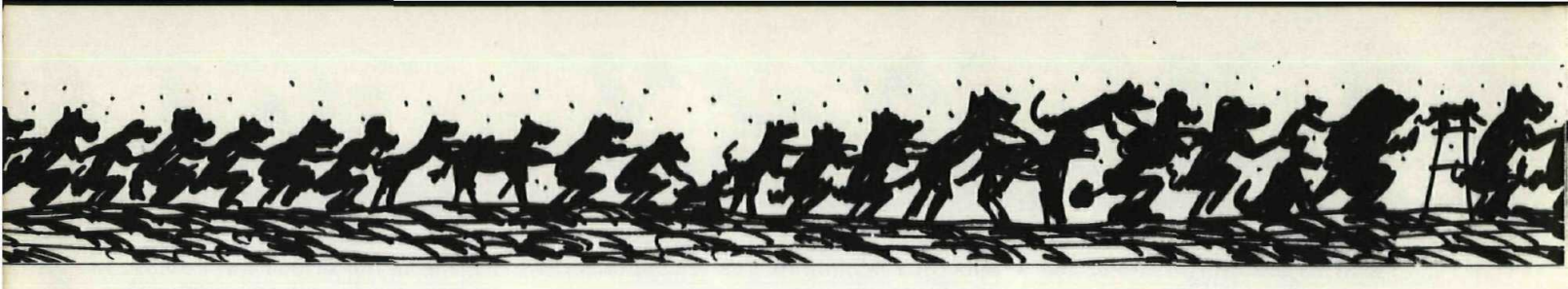
One reason for this flexibility is that the adult flea requires a stimulus, usually a vibration, to emerge from the pupal case. When such a stimulus is absent, the flea will patiently stay within the cocoon, for months, if necessary. Not knowing this, many a pet owner has been unpleasantly surprised by a sudden attack of hundreds, and thousands, of fleas upon entering a home that had been left unattended during an absence due to vacation, or for other reasons.

The stimulus of just the right temperature, on the other hand, along with the vastly larger number of dogs and cats now living in urban and suburban settings, is believed to be responsible for the large scale flea infestations that seem to occur now with greater frequency than in the past. Such infestations have occurred in recent years in such widely separated places as England (where cat fleas seem to be the major culprits), in Florida, and in the San Francisco Bay Area, where some women have taken to wearing flea-collars around their ankles.

Continued on next page

The solid particle carbamate type flea collars discussed in this article are available from veterinarians under the trade names Vet-Kem[T.M.] (Zoecon Corporation) and Sendran[T.M.] (Haver-Lockhart) or in retail outlets under the Zodiac trade name.





The Eternal Itch

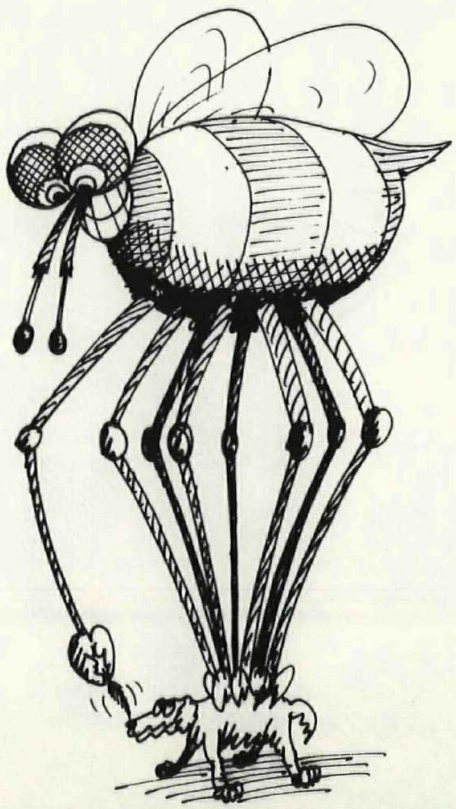
This may be a wise precaution since fleas serve as mechanical and biological carriers of a number of disease agents. The flea's mouthparts not only cause irritating wounds but the punctures resulting from the bites serve as portals of entry for bacteria, fungi, and other microorganisms. Many of these agents are ferried by the fleas in their constant flitting between bloodstreams of different animals, which may not be necessarily related. Many species of fleas have not been incriminated as transmitters of disease agents. A disease transmission belt is created between a mammal, a bird, a pathogen, and the flea. A susceptible human may catch the disease.

Most feared of all the diseases spread by fleas is, of course, the plague. To be sure, it's still not entirely clear just how large a role fleas play in transmitting disease *from man to man*, although the involvement of human, dog, cat, and rat fleas is believed to have been considerable in the Black Plague of the Middle Ages. One doesn't have to go that far back to realize that the plague is still with us. As recently as the summer of 1976, California health officials were stamping out plague-carrying rodents in certain state parks. The gulf separating the rodents from the household pets may not be all that difficult to bridge for rodent fleas carrying the plague organism. Stray dogs and cats in particular, have been shown in many studies to be particularly disease-prone; not surprisingly they are often observed in close proximity of rats. In a landmark study of the ecology of stray dogs in Baltimore, Alan Beck reported seeing rats and free-ranging urban dogs feeding together on garbage from overturned trash cans. The dogs would unwittingly protect the rats by chasing away cats that were stalking rats. And the number of stray and free-roaming dogs and cats is steadily increasing as the total pet population continues to go up.

While the chances of present-day Americans — or at least middle and upper-class Americans insulated from rat-ravaged slums — of contracting plague may seem remote, there are many other diseases spread by fleas. Man appears to catch from fleas mainly rickettsial and bacterial diseases. The bacterial infections include tularemia (a plague-like disease of mammals known colloquially as "rabbit fever,") pseudotuberculosis, brucellosis, salmonellosis, and staphylcoccus aureus. Among the rickettsial infections the most prominent is murine typhus (which, if contracted by man, is a milder disease than epidemic typhus), while among viral infections transmission of virus-induced neoplasms, such as leukemia, by fleas is currently under investigation.

The disease microorganisms infect the fleas when they feed on an infected host and are transmitted from host to host by contamination from infected mouthparts, by regurgitation of infected host blood (if the bacteria happen to be multiplying in the flea's alimentary canal), or by the flea's infected feces. The latter can remain infective for a remarkably long time — up to three years in the case of plague bacilli and nine years for murine typhus.

Strange as it may seem, control of these dangerous insects on the pets themselves by means of a flea collar is a very recent development. When the chlorinated hydrocarbons were in their heyday they were being widely used as dusts, sprays, or dips. As fleas developed resistance to the commonly-used chlorinated hydrocarbons, organophosphate and carbamate insecticides gained ascendancy in the control of ectoparasites on dogs and fleas.



To be effectively controlled, fleas must be destroyed in their breeding places. That is fairly easily done on a periodic basis with sprays or dusts but because of constant reinfection the dogs and cats continued to suffer from the pests until recently. The idea of continually controlling fleas with a collar impregnated with an insecticide began to be investigated in earnest in the 1950s by a number of manufacturers. But it wasn't until 1965 that a fully effective flea collar was introduced.

In 1974, Zoecon Industries scored a major advance in the war against pests that attack pets when it introduced a flea collar that also kills ticks. "The significance of a collar actually controlling ticks," wrote *Pets* magazine recently, "lies in the fact that up to this point, there was no easy, surefire method of preventing ticks on an animal's body. In fact, many so-called tick dips, sprays and powders on the market seemed to have no effect whatsoever on the varmints."

There is a good reason. Ticks are a lot tougher than fleas. Like insects, ticks belong to the vast phylum *Arthropoda*. But they differ from insects, which usually have six legs, in having eight.

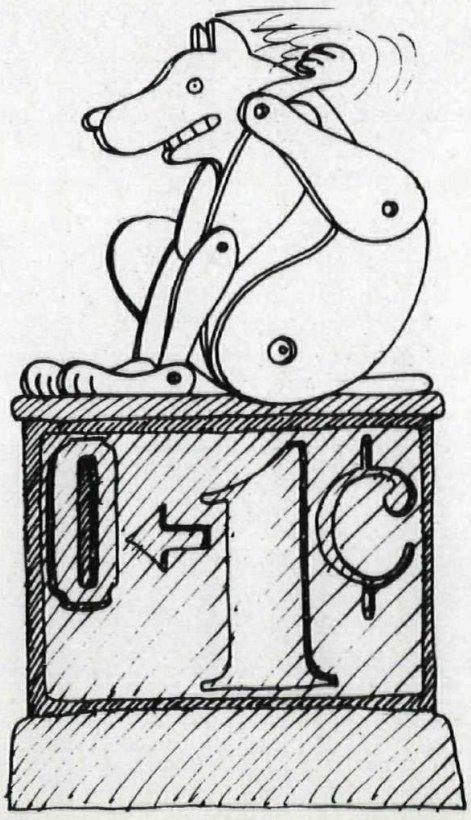
Ticks are divided into two major families, the hard ticks, Ixodidae, which have a heavy, protective chitinous shield (with the females only partially covered), and the soft ticks, Argasidae, which lack the hard chitinized cover. Able to survive adverse conditions and long periods of starvation, ticks hold the dubious distinction of being champion spreaders of disease agents to domesticated animals and rank second only to mosquitoes as transmitters of diseases to man. Ticks harbor protozoa, viruses, bacteria,

rickettsia, and toxins. In keeping with their sinister role as both vectors and reservoirs of disease, ticks transmit all the major categories of the organisms they carry by transovarian and transstadial means, that is, a tick "mother" transmits the organisms to her offspring through the eggs.

The life cycle of a tick is a wonder to behold. The most important species of ticks where pets and their owners are concerned is the brown dog tick, *Rhipicephalus sanguineus*. (It got its name not because of its love of brown dogs but because its color is brown. Cats are far less susceptible to tick infestations than dogs, possibly because most cats constantly groom themselves; they may also have a biochemical antidote against ticks in their blood.) Widespread now in nearly all climates, the brown dog tick holds the dubious distinction of being perhaps the only tick that has become adapted to human habitations.

Outdoors, the brown dog tick comes to maturity on three different, successive hosts; indoors, the three different stages of this tick are just as happy to mature on the same dog. Mature ticks mate on the host after the female becomes engorged with blood, ingesting approximately 0.5 ml. The engorged female then drops off the dog and crawls into a secluded spot to lay 2,000 to 4,000 eggs. In a dwelling she may lay her eggs in curtains, under a rug, between or under cushions, behind picture frames, or under the house or porch. Luckily, the brown dog tick attacks humans only infrequently. But it is a carrier of canine piroplasmosis, canine ehrlichiosis, tick paralysis, Q fever, Rocky Mountain spotted fever and boutonneuse fever. In other parts of the world, the brown dog tick is incriminated in the transmission of some of those diseases to man, but the U.S. variety of *R. sanguineus* is not known to be important in the transmission of diseases other than canine ehrlichiosis and piroplasmosis. Still, the Animal and Plant Health Inspection Service of the U.S. Department of Agriculture suggests that the brown dog tick "should remain in the suspect category until the questions regarding classification and disease transmission are resolved." There is no question, of course, that even the apparently milder U.S. version of the brown dog tick is an exceedingly troublesome pest of dogs that causes discomfort, blood loss, and disease.

What's more, the tick is an active pest in all its stages. From those thousands of eggs, within about 30 days, depending on humidity and temperature, hatch small six-legged tick larvae. They can live without food for a long time, but to develop further they need a blood meal. After they find a host, the larval ticks feed rapidly and fall to the ground to molt. Within two to four weeks, they become eight-legged nymphs. Once again, a trip to the nearest walking blood bank is necessary if growth is to continue. The same long-suffering dog may again become the host. The nymph takes about a week to engorge and once again falls to the ground — ticks spend a lot of time falling on and off animals. In anywhere from 12 to 129 days, a nymph molts and emerges as a sexually mature male or female. Ticks can live for a long time, apparently years, without feeding. But in the more normal course of events, the unfed mature female attaches to a dog to feed. The male traverses the body of the host until he locates an unfertilized female, apparently guided by a pheromone being released by the female. After fertilization takes place, the engorged female drops off to lay eggs, restarting the vicious cycle.



A feeding tick not only devours large quantities of blood but produces wounds susceptible to secondary bacterial infection. Severe infections, particularly in cattle, can cause anemia, loss of weight, and even death. A classic example of heavy tick infestation was reported in 1911 from South Africa, where Sir Arnold Theiler, a famous veterinarian, collected about half of the ticks from a horse that had died of anemia. The ticks weighed 14 pounds.

In a dramatic contrast, a single tick may produce paralysis in a sheep, dog, or human. The most frequent culprit in North America is the Rocky Mountain wood tick, *Dermacentor andersoni*. (The regional names can be misleading, Rocky Mountain Spotted Fever, for instance, spread by ticks, could be more properly called American spotted fever — the disease has been reported in almost every state of the U.S., as well as in Canada, Central America and several South American countries.)

Until Zoecon Industries came along with its solid particle release tick collar in 1974, there wasn't really an effective weapon against ticks on dogs. Compositions made up of a volatile pesticide and a thermo-plastic resin as the carrier had been utilized in the form of collars to control ectoparasites on dogs and cats. These collars do not control ticks, however. Furthermore, a disadvantage of collars made of resin and a volatile liquid pesticide is that dermal irritation in the animal's neck area may occur, sometimes necessitating the removal of the collar. Another disadvantage of the volatile pesticide is that it does not provide long-lasting control of the parasites over a large area of the animal's body.

Zoecon scientists began a search for a solid pesticide that would be non-irritating to the animal and yet would

Continued on page 28

HEARING AND EAR PROBLEMS OF DOGS AND CATS

PART IV

By W. R. Rose, D.V.M.

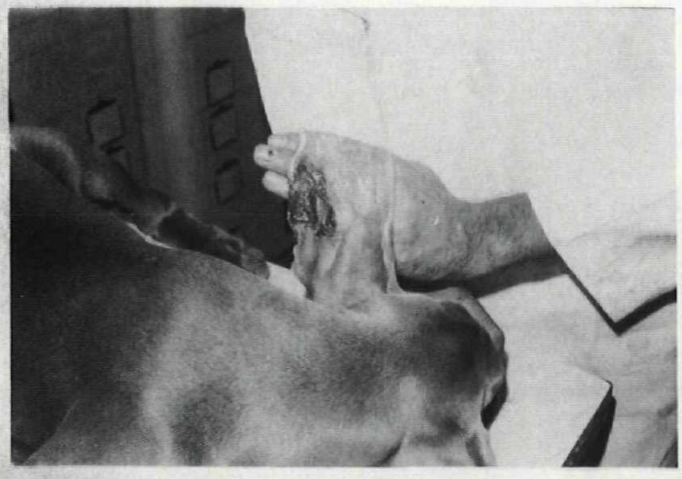
The external ear (pinna) of dogs and to some extent cats, is subject to injury. As mentioned in Part II, the types of ears vary between breeds of dogs from erect to flop ears. The external ear has a very good blood supply, so with small wounds the bleeding can be quite profuse. Besides external bleeding, blood bruises (hematomas) can develop with injury to the delicate vessels that pass through the cartilage of the ear.

Pinna wounds can be caused by external forces or may be self-inflicted. The self-inflicted wounds usually result from irritation within the ear. This is the animal's way of trying to reach the irritation. The mechanical action of scratching can produce wounds (abrasions, lacerations) that will bleed and become secondarily infected. Another type of self-inflicted wound involves the underlying tissues of the ear (closed wound). This is the hematoma. Bleeding occurs between the skin and the cartilage, forming a sac-like swelling. Simple first aid will not eliminate the cause of self-inflicted wounds. A veterinarian should be consulted for diagnosis and treatment.

Wounds from external forces come from fights, sharp objects such as thorns, nails, glass and motor vehicle accidents. In working with dogs (hunting dogs) gunshot wounds are relatively common.

Before administering first aid, several points should be kept in mind. Ear injuries are very painful and restraint techniques may have to be used. Profuse bleeding is usually a problem that must be dealt with and prevention of further injury to the ear is vital before medical treatment. However, first aid of certain types of wounds should be left up to the veterinarian, as follows:

1. Do not wash or bandage a burn.
2. Do not wash or bandage an old, infected wound.
3. Do not wash or bandage a crush wound.
4. Do not remove partly attached tissue.



A lacerated pinna of a dog

The wound after it has been cleaned. Cleaning with soapy water or peroxide is essential in determining the extent, type and severity of the wound.

The following questions should be considered, once the animal is restrained and before any first aid is attempted.

1. Is the wound small or large?
2. Is the wound deep or shallow?
3. Is the wound clean or dirty?
4. What type of wound is it? (avulsion, puncture, abrasion or laceration)
5. What type of bleeding is present? (spurting occurs with arteries and flowing occurs with veins)
6. Is there much blood on the animal? (with prolonged bleeding the animal may be covered with dried blood)
7. Is there more than one wound?
8. Is there a foreign body associated with a wound? (stick, fish hook, etc.)
9. Is there blood in the ear canal?
10. Are there other injuries on the head or upper body?

Figure 1 shows some of the types of injuries found on the pinna of the dog and cat.

Abrasion — a scrape that injures the outer layers of skin. This type of wound does not bleed profusely but is usually subject to secondary infection.

Avulsion — a tearing off of part of the ear. Bleeding is usually profuse.

Laceration — a jagged cut with profuse bleeding. This type of wound is usually deep and subject to infection.

Puncture — a hole caused by a sharp object. The amount of blood varies with the size and location of the hole. This type is very susceptible to infection.

Incision — a cut made with a sharp object with straight wound edges. Bleeding is usually profuse.

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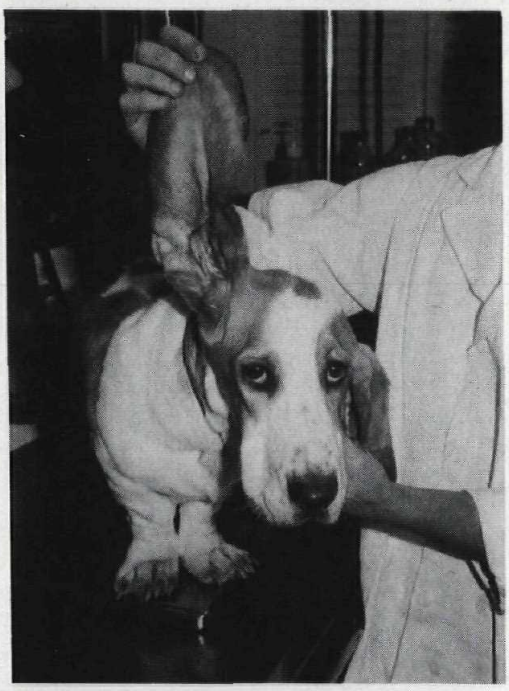
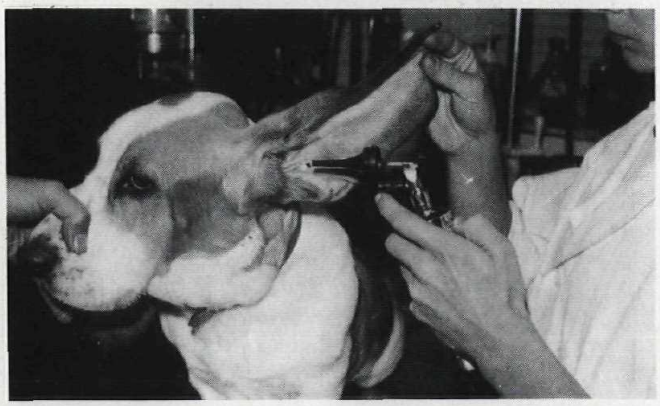
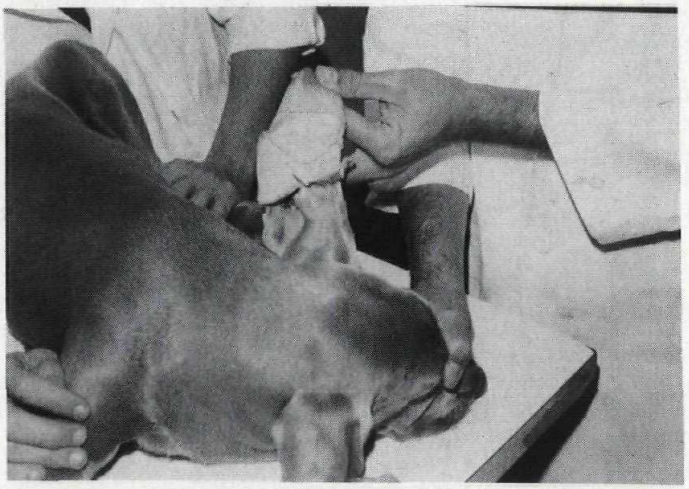






A simple bandage of gauze and elastic tape placed on a minor wound until medical care can be obtained. Such a bandage aids in clotting, prevents further injury and prevents further contamination of the wound.

Top - Raising the pinna and using digital (finger) pressure to arrest bleeding.

Bottom - Examination of the ear canal for damage and bleeding. Blood in the ear canal can come from the bleeding pinna or a deeper wound in the middle ear.

HOUSETRAINING P

Gaines Dog Research Center

Twelve weeks usually is considered about the youngest age a puppy will respond to housetraining. However, many dog owners have successfully housetrained much younger puppies by carefully following the suggestions outlined in the next few paragraphs.

PUPPY TRAINING

Dog owners are likely to look at housetraining as a necessary evil. True enough, but it's more often people, rather than puppies, who err. Successful housetraining depends largely on the effort put into it by the human element. Approached the right way — with prevention, not punishment — housetraining can be accomplished in a short time and be a painless procedure for you and the puppy.

Let's consider what you're dealing with. Your puppy's breed and sex have no bearing on the ease or difficulty with which he's trained. His age does.

Puppies of a few weeks of age have little power of retention, physically or mentally. The younger the pup, the less time between impulse and action. He needs to eliminate; he does. Scold him and he's probably forgotten all about it by the next time he has to relieve himself. Punishing a young puppy has no more effect than it would on a baby in diapers.

But puppies are innately clean. Watch a litter sleeping in its pen. As soon as each pup wakes up, he uses the area farthest from the nest to eliminate. Puppies won't dirty their bed unless forced to do so. This instinct is your greatest housetraining aid.

Start off, then, by confining the puppy as he has been in the kennel or the breeder's home. He knows only this living arrangement. He accepts it in new surroundings if he isn't first allowed the run of the house.

What happens when the puppy isn't safely confined? There are puddles and messes on the floor. You reprimand the puppy who may, or may not, remember the scolding before he makes another "mistake." You are using after-the-fact punishment instead of preventive training. By the time you decide that confining the pup is a good idea, he's used to his freedom and objects when it's taken away.

CONFINING THE PUPPY

Keeping the puppy confined is the basic rule of housetraining. Control is promoted by the pup's instinctive aversion to soiling his bed. You must help by anticipating the times he needs to eliminate and taking him to an appropriate place. He learns correct behavior by not having opportunities to make mistakes. There will be accidents — no puppy ever grew up without them — but they'll be few and seldom compared to those of the puppy who has learned to "go" anywhere by being free in the house. That freedom comes later, after he's trained.

Before you bring the puppy home, prepare a pen for him or enclose an area in one room. The kitchen is a good location. It's usually a center of family activity, where the puppy won't feel isolated. The floor is as damage-proof as any in the house, in case of accidents, and most kitchens have a back door handy for whisking the pup outside at necessary times.

Commercial woven wire pens are available in various sizes, styles and types of construction. A discarded baby playpen is excellent for small puppies. (Fasten wiring around the outside of the slats to make sure the pup can't get caught between them or wriggle out.) Collapsible fencing makes a convenient indoor-outdoor portable pen. Sections of fencing can be attached to a wall, or walls, to enclose an area. Folding gates, such as used at stairwells to protect small children, also may be adapted for an enclosure. Or, you may prefer building a pen to fit a specific place.

Line the bottom of the enclosure with several overlapping layers of newspaper. Put food and water dishes, and toys, inside. Use a small blanket or towels for bedding. Save the regular dog bed until your puppy is past the chewing age.

Dimensions of the pen depend on the puppy's size and estimated growth in three months or so. Housetraining may be accomplished in a few weeks, or less time, but the pen still may be needed as a precaution during the night or when you're away for several hours. Allow ample space for well-separated sleeping and "bathroom" areas.

OUTDOOR OR PAPER TRAINING?

Whether you teach the puppy to relieve himself outdoors or inside on papers, is a matter of convenience and the pup's eventual size. Big dogs, obviously, should be trained to the outdoors. Toy breeds and other small dogs, particularly those belonging to apartment dwellers, are often taught to eliminate on papers.

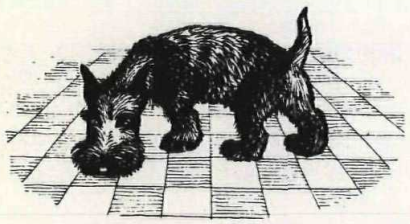
Whichever method you choose, be consistent. Don't confuse the puppy by putting him on papers, then outside, and vice versa. Start with one approach, stay with it and as he gets older, he may very well adjust to both. Many dogs, trained to the outdoors, use paper indoors when necessary.

Be cautious about taking the puppy out before he's immunized against infectious canine diseases (distemper and canine hepatitis, for example). The risk is not too great where he isn't exposed to other dogs by direct contact or through their urine or stools, but exercising an unimmunized puppy on city streets is inviting trouble. Consult your veterinarian about your puppy's protective shots.

UPPIES AND DOGS

Try to arrange the pup's arrival during a period of good weather so he can go outside, when immunized, if this is the housetraining procedure you prefer. Also, try to bring the puppy home on a weekend or whenever you have time to begin settling him into a training routine.

Establishing a routine is simple. In fact, just be observant and the puppy will help you set up his schedule. He needs to "go" when first waking up in the morning, after naps, eating and drinking, playing or other stimulation, and before being bedded down at night. These activities take up most of his day but should two or three hours elapse between eliminations, give the puppy a chance to relieve himself.



Anticipate these times. Keep a sharp eye on the puppy. He often will warn you by over-attention to sniffing the floor or circling as if starting to squat.

Bowel movements depend to a great extent on feedings. A young puppy given three or four meals a day may have that many movements, far more than he'll have as an adult dog.

Feeding a good, complete dog food at regular times helps immeasurably in keeping the puppy on schedule. Unusual "treats" or tidbits from the table between times, or making sudden changes in diet may cause digestive upsets and loose bowels. If you make a change in your puppy or dog's diet, mix in a little of the new food with the former food at first, gradually increasing the new food and decreasing the former.

OUTDOOR TRAINING

When the puppy shows signs of needing to eliminate, pick him up immediately and take him outside. Have his collar and leash handy but put them on as you go. The few seconds this takes may be a few seconds too long for the puppy.

During the first stages of housetraining, take the pup to the same place each time. Once he's urinated there, the scent remains and stimulates him to use the spot again. City dogs should be taken to the curb; others a place well away from the house or any area with human foot traffic. Permitting a puppy to soil in front of the doorstep soon makes the entrance to your home slovenly and unsightly.

Always go outside with the puppy even if you have a well-fenced yard or acre of ground around your home. Take him a good distance from the house. Don't just push him out the door or he'll form the habit of relieving himself there. Also, you can't be sure if he *has* eliminated.

If you live in a city apartment, put on your coat and be ready to go outside as soon as you pick up the puppy from his bed. If you put him on the floor while you get ready there is very likely to be a puddle. Carry him outdoors while he's small. Later he'll walk along on a leash.

The puppy probably will relieve himself soon after he's taken to the designated spot. Most puppies go through a ritual sniffing and circling. Be patient. Perhaps walk him around a little. But don't let him become too distracted. Keep him to the business at hand and praise lavishly when he performs.

An occasional puppy is slow to learn about eliminating outside, especially if he's previously been accustomed to papers, or to making mistakes in the house. Training takes persistence as well as patience in these cases. Repeat the going outside-same-place-praise routine until he gets the idea or gives in and accepts it.

All this may seem like a lot of trouble but a couple of weeks' concentration on housetraining works wonders!

Take the puppy to different places and on various surfaces, after he learns that outdoors is the approved location for his chores. Dogs can become "fixed" on a particular spot and refuse to eliminate anywhere else. This can become a problem. Let the pup know he can relieve himself outside wherever he's led: on grass, dirt, gravel, or concrete curb.

PAPER TRAINING

Instead of taking the puppy to the same place outdoors, cover the entire floor area of his enclosure with several thicknesses of newspaper and let him select the area in which he prefers to eliminate. He'll choose a corner as far as possible from his bed and consistently return there to relieve himself. When this pattern seems set take away the papers farthest from the "bathroom." Gradually remove more papers until only the "bathroom" area remains.

As with outdoor training, anticipate the pup's eliminations, use encouraging words, and give him lots of praise when he performs in the right place.

Your puppy may be performing quite reliably in three or four weeks, even sooner. Don't suddenly turn him loose in the house. He's probably far from completely trained at this stage. Excitement, stimulating play or scents, fright, or a sudden urge to "go", can cause an accident and possibly a setback in the training that's been accomplished.

Start by giving him the freedom of the kitchen or other restricted area. Be sure the paper trained pup has papers available at all times. Put them in an out-of-the-way place, if you wish, but show him where they are. Keep to the regular schedule. If he shows warning signs promptly take him to his papers or outside. The more dependable he is, the more freedom he can be allowed.

ACCIDENTS DO HAPPEN

There undoubtedly will be accidents, no matter how much care you take. Scold the puppy *only* if you catch him in the act or immediately afterwards. His memory is short. Scolding or punishment long after the fact simply confuses him. It also can prompt a sensitive pup to piddle from nervousness.

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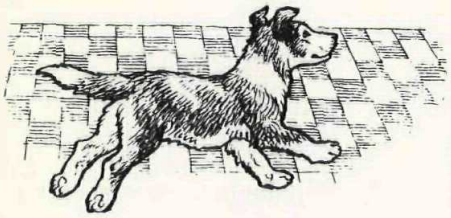
HOUSETRAINING PUPPIES AND DOGS



Putting the puppy outside or on his papers after an accident serves no good purpose. It's more likely to undermine the association you're trying to build between his urge to eliminate and going to the right place to do it.

A combination of after-the-fact punishment and taking the puppy outdoors or to his papers is too often used in housetraining. Consider the situation: the pup has wet the floor. When it's discovered, he's dragged to the spot, scolded, slapped and thrust outdoors. As far as the pup is concerned, he's punished for some unfathomable whim of his owner. He's bewildered, perhaps frightened, and may resist using the usual place because it seems part of the disapproved behavior.

Under no circumstances should a puppy's nose be rubbed in his mess. This is a filthy practice and teaches the dog nothing except, possibly, to eat excrement, since he must lick his nose to clean it.

When you catch the pup in the act, scold him but be gentle during early stages of training. When he's half grown and presumably knows better, the point can be reinforced by giving him a shaking or a smack on the hindquarters.

What should you do when a puddle or mess is found? Clean it up and promise yourself not to give the pup other chances to get into trouble. The scent must be removed from the scene of an accident. Otherwise it remains as temptation for the puppy to use the same place again. Keep blotters or an absorbent towel handy for quick action, especially on rugs or carpet. Use a commercial product made for the purpose of removing urine scent, or a solution of water and vinegar. You can finish by spraying cologne. Dogs find the aroma of perfume highly unpleasant.

To summarize, the puppy is housetrained by prevention. He's taught good manners while not being given a chance to form bad habits.

THE ADULT DOG

An adult dog has certain advantages: he has greater learning capacity than a puppy. He remembers praise or punishment, and more readily understands its cause and effect relationship. He also has greater physical control and less frequent need to relieve himself.

If your newly acquired grown dog was properly trained as a puppy, you should have little difficulty adapting his routine to your home but an adult dog that's been mishandled or not fully trained may have habits that call for special training. These are covered in the following sections.

Even though your dog may have been perfectly housetrained in his previous home, nervous reaction to a strange situation or scents, such as that of a previous dog, may cause a lapse in manners. So may the male dog's natural instinct to "mark" his territory by urinating. Be cautious. Don't assume that his housetraining will prevail in your home until he is used to new surroundings and shows dependable behavior.

Follow the basic housetraining rule. Confine the dog unless you, or someone else in the family can be with him and watchful. He may be too large for the type of pen described for puppies, but restrict him to the kitchen or some other room where he can have his bed, food and water dishes, and papers, if that is the training procedure to be used.

A crate is accident prevention at night or when the dog must be left for a period of time. Collapsible crates of woven wire come in all sizes. The dog won't soil his bed, in this case, the crate, if he possibly can avoid doing so. But be sure that he has a good chance to relieve himself before being confined. You may wish to use a crate for his regular bed. It then becomes his special place in the house. He feels secure in it and doesn't resent being confined there when necessary. Many dogs, used to a crate, go inside of their own accord and rest there, even though the door is open.

Exercise your dog early in the morning, late at night, after his evening meal, and once or perhaps twice more during the day. Some dogs get along with morning, late afternoon and evening walks. Others need to relieve themselves more often. For these dogs, dual training to papers and outdoors may be necessary if no one is home most of the day.

From the start, curb the city dog. In suburbs or country, bring him to an area well away from your home. A male dog will try to urinate on the doorstep or shrubs near the door. Remember, he marks his territory this way, performing a rite as centuries' old as the canine species to inform other dogs that this is his home. But besides the urine's killing shrubs, its odor invites passing dogs to investigate. Take the dog on his leash where you want him to relieve himself. That doesn't mean on the neighbors' front yards, driveways, or automobile tires! Of course, don't take him on a half mile hike, either, before letting him stop.

A female's urine attracts attention from other dogs, too. When she's in season, her urine scent announces the fact to every passing dog. If she's allowed to relieve herself in your immediate neighborhood, male dogs will come from far and wide to loiter around your house. At such times (usually twice a year for a period of

about three weeks) she should be kept in a boarding kennel or confined in some way to prevent her being bred. Spayed females, of course, are no problem in this respect.

Male dogs and females relieve themselves in different ways. A female empties her bladder quite completely at one time. She may be more deliberate in selecting a spot she prefers but once she's urinated, she's usually through.

A male dog releases his urine a little at a time, conserving enough to make his mark as often as possible. If he wets in the house after only a few minutes of outdoor exercise you're probably at fault for not letting him finish.

A young male dog, by the way, starts lifting his leg from about four months of age up to a year, perhaps older. As a puppy, he squats and still may do so occasionally when grown.

Praise your dog extravagantly when he performs in the right place. Let him know you're delighted with him for his good behavior. He'll catch on quickly, as with a puppy, if you keep him on a regular schedule. Allow him run-of-house privileges only when he shows housetraining reliability.

SPECIAL SITUATIONS

ARRANGEMENTS FOR WORKING OWNERS

Owners who keep business hours have several alternatives for their dogs' daytime care.

As previously mentioned, your dog may be able to get along with exercise you provide before and after work. But don't ask too much of him.

Many cities have professional dog walking services. For a fee, your pet is exercised at specific times, usually with other canine clients. Or perhaps you can make similar arrangements with a neighbor or school-age youngster.

If your house has an enclosed yard, it may be feasible to install a special dog door in the regular door that opens into the yard or dog's run. These products are available commercially, most of them hinged or otherwise constructed to permit the dog to come and go as he wishes. Be sure — and this cannot be overemphasized — that the yard fencing is secure. It should be in good repair, sturdy, and sufficiently high to prevent the dog's climbing or jumping out. A foot or so of wire mesh, fastened at an angle to the fence and overhanging the inner edge, is a safeguard. The fence also should be tunnel-proof. Set the bottom edge in concrete or sink it several inches into the ground. Don't underestimate your dog: he may be a more skillful escape artist than you imagine.

Many working owners, however, find the best solution is paper training their dogs or teaching them to use both paper and outdoors.

The paper method often is preferred by city people who haven't the time, inclination or suitable facilities for routine dog walking. Paper training procedures described earlier apply here, too. Leave several thicknesses of newspaper down for the dog at all times. Put papers on a washable surface. Over several hours' time, some urine may soak through and possibly stain a wood floor. Also be sure the dog always has access to his papers.

Confining the dog during your absences when initiating paper training is a sensible precaution. Don't crate him for long periods but for the sake of your rugs and peace of mind, put him in an area of the house where an accident will cause the least damage.

If you want your dog to relieve himself on papers and outside, as well, don't give him a choice. Pick up the papers while you're at home. Take the dog outside on schedule, praise him when he performs, and follow the other basic housetraining suggestions. Sometimes a dog that's confused by the transition from papers to outside is given the idea from a piece of urine-wet paper placed on the ground.

As with any stage of housetraining, you must keep on top of the situation. Don't let your dog have a chance to make mistakes. Confine him and provide papers when you're not home. Give him adequate exercies and supervised freedom when you are at home. With patient and consistent coaching, the dog will understand that he's to eliminate outside when given the opportunity and to use papers when they're put down for him.

ASKING TO GO OUT

Once your dog is housetrained, you may wish to add a finishing touch by teaching him to let you know when he needs to go outside.

Make an event of his excursions. Enthusiastically ask the dog if he'd like to take a walk. Put on his collar and leash, pause at the door, and repeat the question. Urge him to bark or "speak" if you want this additional signal.

That's all there is to it. Pets quickly absorb often-repeated routines and phrases that apply to them.

"Do you want to go out?" soon sends your dog tail-wagging to the door. Before long he'll take the initiative.

You must follow through, of course, by exercising him when the request is made. Don't permit anyone to tease him with the "want to go out" expression, or other phrases or commands or they lose all meaning and confuse the dog.

CURBING

Curbing means teaching your dog to relieve himself in the gutter, where wastes are carried off by street sewers. It's easy enough since the streets are used for this purpose by many, many dogs. The odors tell your dog what to do. With proper timing on your part, he'll learn to eliminate in the gutter without undue problems in getting the idea across.

Many communities have curbing regulations, often with fines imposed for not obeying the restrictions.

Whether or not such rules are in force, your dog never should be permitted to soil the sidewalk, footpaths or any area where people walk.

Go to the curb when you take your dog out. Don't dawdle on the sidewalk. If the street is busy and curbing not safe, carry a small dog or walk briskly to another spot.

Don't curb an unimmunized puppy. In fact, don't take him on the street at all. Besides teeming with odors, it's

Continued on next page

HOUSETRAINING PUPPIES AND DOGS

teeming with germs. If you're a city dweller and have a puppy that hasn't yet been protected from infectious canine diseases, keep him home and paper-train until he's received necessary vaccinations from your veterinarian.

WHEN A DOG FORGETS HIS TRAINING

Occasionally a dog that's clean at home seems to forget his training in other surroundings. Almost always this occurs with a male dog acting under the instinctive urge to leave his mark.

Keep the dog on a leash and close at your side when visiting, shopping or in other circumstances that might tempt him to lift his leg. If he starts sniffing or acting too interested in his surroundings, give the leash a sharp jerk and say "no!" in very firm tones. Tell an obedience-trained dog to "sit," or "down," and "stay."

Deliberate soiling should be followed promptly by a "no" reprimand and whack on the rump.

NERVOUS WETTING

Some puppies, and adult dogs, too, trickle urine because of nervousness. This is an entirely involuntary reaction, usually triggered by excitement or fear, or a dog unaccustomed to children may trickle from uncertainty in their presence. As he gains confidence in you, in himself, and his surroundings, he'll get over it. Don't let it worry you.

Punishment is the worst approach. Remember, the dog can't help himself. Scolding only heightens his apprehension and increases the problem. Do not confuse this action with deliberate wetting.

Be very patient with a dog of this temperament. Use diversionary action. When you come home, speak to him quietly and affectionately but give his initial excitement a chance to calm down. Don't grab at him or tower over him. Ask visitors to ignore him when they come into your home. Let him make his own advances, as he gains confidence.

If concerned about damage to floors or rugs keep certain rooms, such as the living room, out of bounds. Since accidental wetting often happens near the front or back door, the scene of comings and goings, protect the area with newspapers or washable rugs. Keep to the regular housetraining routine, of course, but don't worry about the nervous wetting. It stops if you use the right tactics.

THE TOO-WELL-TRAINED DOG

It's possible for a dog to be too well-trained. While this may seem all to the good, a change in routine can cause problems. Perhaps a paper-trained dog won't relieve himself outdoors or an outside trained dog won't use papers. A dog accustomed to running loose in a yard may resist eliminating when on a leash or a leashed dog may insist on using one particular place.

When it's essential for the dog to adjust his habits, go back to a puppy training procedure. Confine him and get him to the new location on schedule. Follow other steps suggested in the puppy housetraining section.

Be fair. After all, it's a confusing situation. A clean dog is distressed when forced to eliminate in a place that previously was forbidden. He won't understand at first and probably will resist. Extra patience is needed as well as extra-lavish praise when he does perform where you now wish.

Be alert to his needs, too. Don't complicate his problems by making him wait, thus possibly having an "accident" even though it follows behavior that was approved before the new regime.

A dog raised in the city and accustomed only to the street usually has to be taken on his leash or coaxed to the roadside or woods. If just turned loose, he'll use the nearest familiar-seeming surface such as concrete walk or macadam driveway.

Similarly, the country dog has to learn about curbing when brought to the city. A male dog usually goes where other dogs have urinated. A female has no such urge and has to be coaxed along. First find a grassy spot or some earth, if possible, gradually guiding her to use the street gutter.

WETTING AT NIGHT

If your pet doesn't last through the night without urinating, try taking him out an hour or so later than usual before going to bed, or a little earlier in the morning. Perhaps the extra time is all that's needed.

It may be that the dog, particularly an older one as well as a puppy, can't hold out for six or seven hours. In such cases, settle him for the night in a confined place, put down newspapers, and be sympathetic. It's a good idea, as well, to have your veterinarian give him a checkup. Frequent urination can be a symptom of kidney infection or other ailments.

When nighttime wetting appears to be carelessness on the dog's part, take appropriate steps. Remember that he won't soil his bed. Put him in a crate for the night or tie him near his sleeping place. He probably won't like either situation but will learn to control himself until morning.

DELIBERATE SOILING

Why does an ordinarily clean dog soil in the house? Other causes aside (illness, your slackness in exercising him) these misdemeanors usually happen during your absence as the dog's revenge for leaving him. Some dogs become careless in the house. In either case, the problem should be stopped in short order. This is a quite different situation from an untrained puppy's accidents, so lead him or carry him to the mishap and be tough on him.

There will be fewer problems, puddles and punishments if the dog is confined when you're away from home. The next time you go out put him in his crate or a paper-covered area. If he remains clean, return his accustomed freedom during your next absences.

Be sure the soiling is deliberate and not because your dog couldn't help it. Was he exercised long enough to "empty out" before you left home? Did guests at your cocktail party feed him an assortment of canapes his digestive tract couldn't handle? Think back before jumping to conclusions so you won't be unfair to him.

STOOL EATING

Coprophagy, or stool eating, is one of the more disturbing habits that owners sometimes encounter in their dogs.

This practice is disgusting to you and unhealthy for the dog. Stools are a prime means of transmitting worm

eggs and larvae, and disease-carrying organisms. Coprophagy, however, is not a perversion in the dog's makeup. It is, rather, a problem to be dealt with and solved, like any other.

Although no single cause is pinpointed as the reason for coprophagy, several possible situations and/or theories are well worth acting upon.

Your first step should be veterinary examination of the dog's stool for worms. Infestation of intestinal parasites robs the dog of nourishment. He may turn to stool eating as an instinctive attempt to replenish himself with partially digested food substances.

Proper management and cleanliness, whether for one dog or a kennelful, are essential. Keep exercise areas free of stools: obviously, the dog cannot eat what's not there! Eliminations usually can be gauged by feeding times. Try to schedule your dog's meals so his enclosure can be cleaned promptly.

Stool eating often starts from boredom, then becomes habit. Puppies may form the practice by playing with stools through lack of other diversion. It's also not uncommon in dogs that are closely confined or overcrowded.

Give your dog, or dogs, adequate space and, preferably, supervised daily exercise out of the kennel runs or regular enclosure. Provide suitable playthings.

Self-feeding may be a solution and is especially practical for kennel dogs or those that must be left alone for long periods. Constant access to food can be provided by a commercial self-feeding device that automatically fills an attached dish, or you may simply keep a large container filled with food. Dogs do well on self-feeding when complete and balanced foods are used, especially the dry dog food products. Such foods are ideal for the purpose because they contain all essential nutrients and need no special storage or handling. Most dogs on self-feeding adjust their intake to satisfy individual nutritional requirements, and — a big "plus" for those with the problem — aren't tempted to eat stools. A few dogs may overeat on this method but most self-fed dogs keep in excellent condition.

Recent veterinary research indicates that lack of the digestive enzyme, amylase, may contribute to coprophagy. Amylase passes rapidly through the dog's system and may not be retained in sufficient amounts to satisfy the dog's need for it. This enzyme is contained in certain fruits and vegetables and a similar-acting enzyme, called papain, is used as an ingredient in meat tenderizer products. A teaspoon or two of meat tenderizer can be mixed into the dog's food as an attempt to stop coprophagy.

Another suggestion is adding a drop or two of anise or monosodium glutamate to the dog's meals. Neither affects food flavor but both give stools a taste unpleasant to the dog.

CARE OF OLDER DOGS

As your dog ages, he'll probably need to urinate more frequently. He has less bladder control than before, perhaps caused by weakening of the sphincter muscle that holds urine in the bladder. Lack of tone in this muscle can also make the dog dribble urine.

Your veterinarian may be able to suggest treatment that can help the dog have greater control over his bladder. Veterinary advice should be sought on this and other care of the older dog. In fact it's an excellent idea for your pet to have annual checkups, care often more important after age five or six, when he reaches canine middle age. Physical problems that may be developing then can be diagnosed and treated at an early stage. Such canine preventive medicine helps assure the dog a healthier, longer life.

Kidney disorders sometimes affecting older dogs are among the ailments that may respond favorably to early treatment. Be on the alert for increased or decreased urination, or abnormal thirst. Other danger signals are painful urination or bowel movements, bloody urine, and vomiting. Kidney infection may cause the dog to cry out when handled on his back near the hips. Don't lose any time getting veterinary assistance if these symptoms occur.

Constipation may plague the older fellow. He's probably being given the same amount of food as when younger and more active. Now, however, his intake may be combined with less exercise and, possibly, a less efficiently functioning digestive tract.

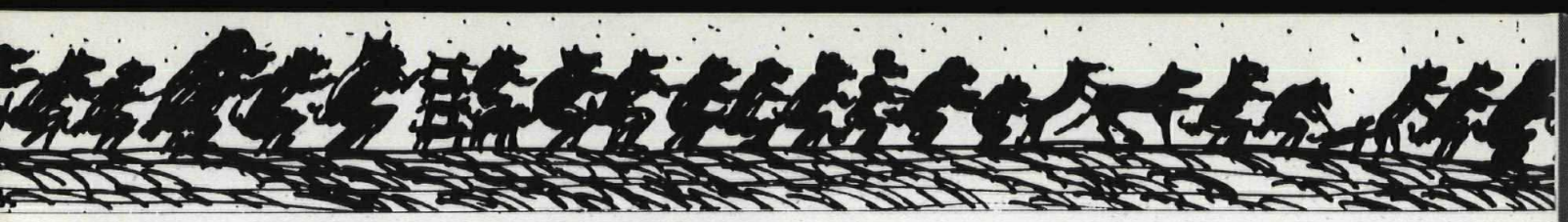
An older animal requires fewer calories than one that is growing and has greater physical demands. Your dog may be better off with smaller daily meals, perhaps served in several portions instead of one to avoid overloading his system. Mild laxatives, given only on your veterinarian's advice, may relieve constipation. Remember, though, that haphazard dosing can create worse problems than those you're trying to cure and that many medications for people are disastrous for dogs.

Give the aged dog all the opportunity he needs to eliminate. Put down papers or washable rugs for him in the house, if necessary, where he has access to them at all times. Don't scold him for accidents he can't help. He's as distressed as you are, even more so, at the mishap.

When ailing and unable to go outdoors by himself, a well-housetrained dog may have to be carried outdoors. He may completely refuse to eliminate in the house, no matter how you try to show him you won't mind.

Be extra patient, understanding and conscientious about the care of your old dog. He deserves this attention now, more than any other time in his life.

GAINES DOG RESEARCH CENTER 250 North St., White Plains, N.Y. 10625



The Eternal Itch

Continued from page 19

provide long-lasting and continuous control of both ticks and fleas. After long trials of various chemicals, they settled on propoxur, an isopropoxyphenyl methylcarbamate.

To determine the concentration of the chemical needed for the planned life of a collar, more than 30 initial formulations were tried. Each experimental collar had to be aged for 30 days at various temperatures, to determine its potential effectiveness. Then the candidates were narrowed down to two or three. Scientists finally came up with a composition that has the property of providing a self-replenishing coating of carbamate particles on the surface of the collar. The replenishing occurs by migration of the carbamate molecules from deep inside the collar — a constant flow whenever carbamate particles are displaced as a white dust from the surface of the collar. The exact mechanics of this migration have still not been worked out but what apparently keeps the carbamate molecules moving out is the concentration gradient within the collar.

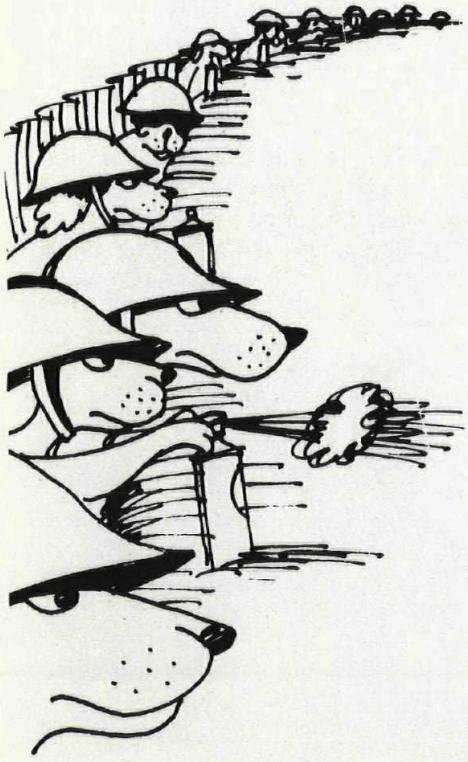
Ideally, the particles should begin to move to the surface only after the pet owner opens the tightly sealed package containing the collar. To keep the material from being released while the collar is still in the package was not a trivial matter. A certain amount of the material will come to the surface of the collar while it's packaged but since the pesticide is not being removed, the release mechanism stops. It starts again only after the package is opened and the collar is placed on the pet.

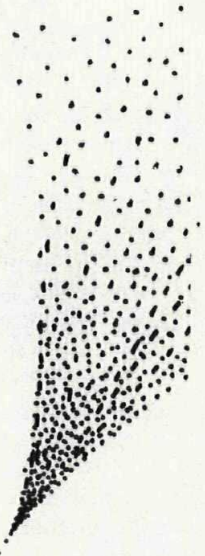
After the formulation obstacles were overcome, the scientists had to determine how the chemical spreads on the dog's body. In Dallas, Zoecon maintains a kennel of about 120 dogs as well as a cattery of about 80 cats. (A visitor to the kennel is greeted by happy yelping while meowing cats reach out with their paws for affection. These animals are obviously happy. Once, some of the Zoecon dogs escaped on a weekend. But they were back early Monday morning, with all the rest of the employees, eager to be let into the kennel again. Similarly, the caged cats aren't all that anxious to leave, having become accustomed to their quarters).

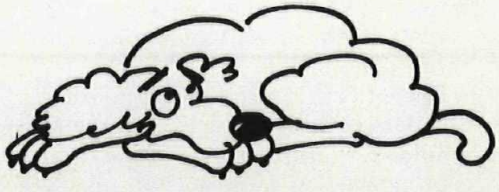
In a test of propoxur's effectiveness, three pooches, selected respectively for long, medium, and short hair, wore collars with the insecticide colored red. This allowed the scientists to see how the chemical acted; first, red streaks across the dog's coats became visible as the animals spread the powder by scratching, and later their whole bodies become covered with the red dust.

A number of dogs were then exposed to a controlled tick infestation in a tick house in Dallas. Zoecon maintains its own colonies of fleas and ticks to have a ready supply on hand. The dogs were placed in cages and the dead ticks collected; the collars were producing an almost complete kill of the ticks. Further refinement of the formulation and manufacturing techniques and the collection of additional data on safety and efficacy led to the registration and marketing of the propoxur tick and flea collar some two and one-half years after the project began.

The unabated growth of the pet population, with a corresponding increase in strays obviously calls for action by local authorities to encourage more responsible pet ownership. Science, for its part, can contribute in many ways toward alleviation of the disturbing health hazards that are being magnified by the lack of concern or lack of knowledge by irresponsible pet owners. The unchecked growth of pet population could be held at bay through development of effective, easy to give oral contraceptives. Better antihelminthic agents can be developed. Obviously, the undeniable value of pets as companions of man — what Kipling called the dog's "love unflinching that cannot lie" — demands the solution of many of these health problems for the benefit of both man and the pets themselves.







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HEARING AND EAR PROBLEMS OF DOGS AND CATS

FIGURE 1

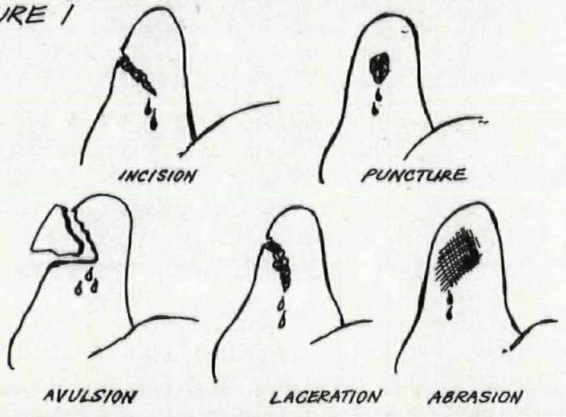
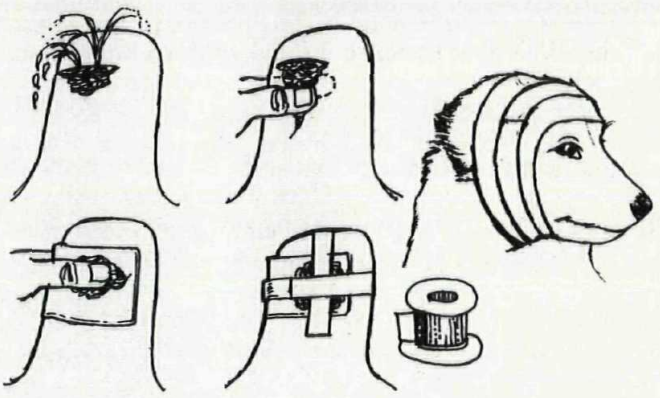


FIGURE 2



After examination of the wound, the next priority is to stop or slow the bleeding. Finger (digital) pressure should be below the wound (see Figure 2), and can be of immediate value unless the wound is too close to the head. The pinna is taken between the fingers and gentle pressure is maintained until the ear can be bandaged. Do not use a silver nitrate (septic) stick on ear wounds. In dogs and cats with erect (prick) ears, a loose wad of absorbent cotton can be placed in the opening of the external ear canal to prevent blood from flowing into the ear canal. If blood is flowing from the canal or clotted blood is already in the canal, do not put cotton in the canal. Remember to tell the veterinarian if you have put cotton in the ear. Take a piece of multilayer gauze that is found in all first aid kits and apply it to the sides of the pinna over the wound. Raise the ear up over the head. Be gentle. The elevation of the ear alone will slow the bleeding. The bandage dressing should be sterile. Put a piece of tape on the free ends of the gauze. Gauze pads help to control bleeding. Try not to touch the open wound with your fingers for you may contaminate it with additional germs. Next take a roll of gauze and wrap it around the head several times to hold the injured ear in an upright position over the head. Tape this gauze in position to prevent slippage.

The restraints may have to be kept on the animal until the ear can be treated. Some animals object strongly to a bandage of the type described above. The dog or cat may try to scratch the bandage off. A makeshift collar can be constructed from a cardboard box. This collar will make it difficult for the animal to further injure the ear. Remember that any bandage or collar must go around the neck of the animal. It must not be a restriction for breathing. The bandage should be snug but not tight. This point is especially true with the tape that holds the gauze in place.

Wounds that are shallow and dirty or do not bleed profusely can be cleaned. The best cleaning agent is warm soapy water. Washing the wound with a sterile gauze pad is advisable to prevent further contamination. Remember to plug the external opening of the auditory canal before washing to prevent water, dirt and debris from flowing down into the ear canal. Flush with water first then wash very gently taking care not to injure the delicate exposed tissues. When the washing is completed, flush with clear water to remove the soap and bandage as outlined above. If the wound begins to bleed profusely during washing, carry out the procedures outlined for hemorrhage.

Try to keep the animal calm during the examination, cleaning and bandaging processes. If the pet becomes too excited, the blood pressure will go up, increasing the hemorrhage. This can not be helped in some cases.

Hematomas should be handled gently. Do not attempt to burst or lance a swelling of this type. You can damage the delicate ear cartilage, cause a profuse hemorrhage or infect the area. A box collar or an ear bandage is usually all that is needed to prevent further damage to the ear by the animal. See your veterinarian as soon as possible for medical and surgical treatment of this problem.

As mentioned in Part III you can aid your veterinarian by helping to formulate a case history:

1. When do you think the injury first occurred? Be as specific as possible.
2. How was the ear injured?
3. How many injuries are there?
4. Was there much bleeding? Arterial or venous?
5. When was the animal last fed? (Anesthesia may have to be used for surgical correction of the wounds.)
6. Has your animal had ear injuries similar to this before?
7. Does your animal have a history of ear disease? Type? Treated by whom?
8. Was the wound contaminated (dirty)? Have you washed the wound? Have you put any other medication on the wound?
9. Can you handle your animal well enough to handle after care? Can you give pills or liquids to him?

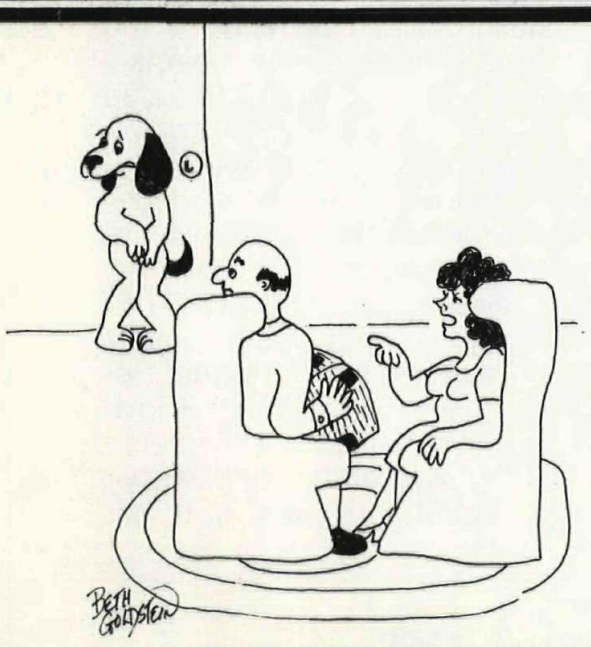
Continued on next page

Every home and car should be stocked with a first aid kit. With a well-stocked first aid kit, both human and veterinary emergencies can be dealt with rapidly. Keep these supplies in a place where they are easily accessible. Restock the kit after each use. Most supplies can be purchased in a drug store. Check and see what your kit contains. There are many sizes and types on the market today. Add to your kit before an accident.

The following list deals with ear injuries only:

Sterile absorbent cotton	1 2 ounce box
Sterile roller bandage	4 two inch rolls
Sterile roller gauze	two rolls
Adhesive tape	2 two inch rolls
Sterile gauze pads	12 (2 in. × 2 in.)
Antiseptic soap	1 bottle
Wash basin	
Hydrogen peroxide	1 bottle
Scissors	2 pair heavy bandage type
Elastic adhesive bandage	4 rolls two inch wide
Tweezers (thumb forceps)	2 pair, one blunt pointed, one sharp pointed
Antiseptic solution or ointment	1 bottle or 1 tube
Flashlight	1 plus spare batteries
Adhesive tape	2 one inch rolls
Sterile gauze	two rolls

Hydrogen peroxide is a good cleaning solution and will also remove clotted blood from hair. If this solution is used, it should be rinsed off immediately. Care should be taken not to get this solution down the ear canal. Use only the type of peroxide intended for medical use, since it is sterile and in the proper concentration.



DEAR, I THINK ROVER IS TRYING TO TELL US SOMETHING

ask Dr. Smithcors

Continued from page 9

about. However, if she does not get rid of the hair, it may form balls large enough to cause constipation or even impaction of the intestine, with loss of appetite and body condition. This can often be treated by giving the cat mineral oil or petroleum jelly, but if severe, a veterinarian's attention may be required. Hairballs can usually be prevented from forming by grooming your cat regularly, perhaps daily as long as any substantial amount of hair comes loose. Some preparations for hairball prevention are available at pet stores, but adding mineral oil at a rate of one teaspoonful per 10 pounds of body weight to her food once or twice a week will do nicely.

Q **My male doberman pinscher sometimes has difficulty urinating and at other times the urine just drips out. What could cause this problem?**

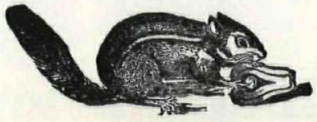
A This is usually due either to inflammation of the bladder (cystitis) or formation of stones (calculi) in the bladder or urethra. Whatever the cause, you should consult your veterinarian because if it is left unattended, it is almost certain to get worse.

Q **My pet boa has little black bugs all over him. They are also in his cage. What are they and how do I get rid of them? Do they harm him?**

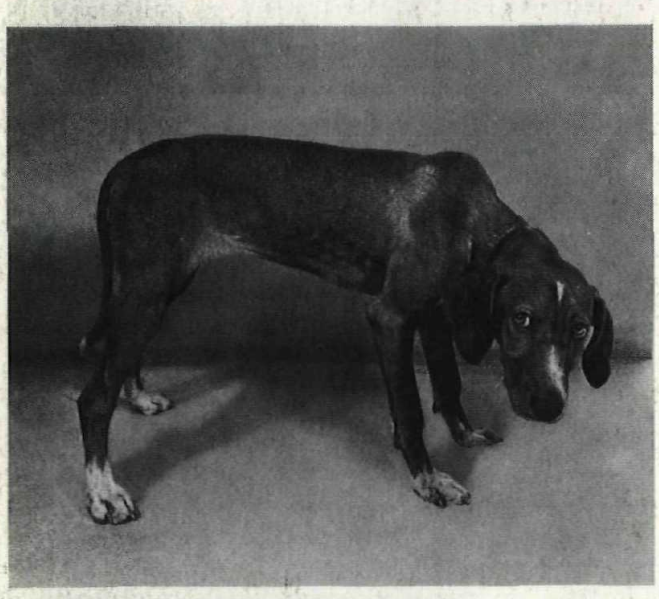
A These are most likely snake mites, or possibly ticks, either of which can be bothersome to their host — in this case, your boa — and they can transmit various diseases to other snakes. Soaking the snake in tepid water in an appropriate container (bathtub?) may be the best procedure for quick relief. His cage should be cleaned, and then if you will hang a small piece of a dichlorvos plastic pest strip (Shell No-Pest) above (not in) the cage, this should take care of the problem in the future.

Q **My cat has one pupil that is always more dilated than the other. What could be the cause, and is it something to be concerned about?**

A There are several conditions that can cause this, and all of them are bad news — which is to say, don't expect it to clear up by itself. Various diseases or injury to the motor nerve supplying that eye may be involved, but when it is persistent in one eye, it usually means glaucoma. But don't despair; it often can be treated successfully if attended to soon enough. About 5% of normal persons have pupils of different size, and in such cases the two pupils react the same to light. I am not aware of any such condition in cats, but your veterinarian can tell you whether yours might be the rare exception, in which case no treatment is necessary.

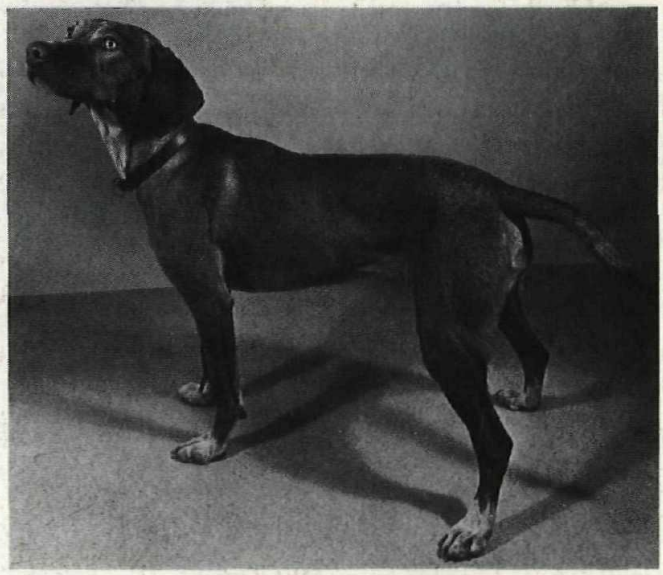


"With lots of love and ALPO, Spirit now lives up to her name."



BEFORE ALPO:

Spirit on July 7, 1976. Suffering from insufficient protein, malnutrition and neglect.



AFTER ALPO:

Spirit on December 1, 1976. Enjoying good health after a steady diet of ALPO's meat protein and loving care.

"We found her on the 4th of July, so we just had to name her "Spirit," not that she had any. When we first saw her at the pound, we knew we had to adopt her. Why, we could count that poor pathetic dog's ribs. No pep, half starved and craving affection as much as food. We have plenty of both to give her."

Plenty of love and plenty of ALPO Beef Chunks Dinner. That's what the John Holbens of Allentown, Pa., had to offer Spirit, the sorrowful looking dog that won their hearts. The Holbens' local veterinarian informed them that Spirit had no diseases, but was badly in need of a proper diet and lots of attention.

"We figured that she needed the kind of food that would stick to her ribs—and build her up. And what's better than good rich chunks of beef? That's why we decided on ALPO."

The Holbens made a wise decision. Meat-based foods are more digestible than cereal-based foods. Which meant Spirit's system was able to absorb and use more of the food she ate. Since meat is a dog's natural food, she loved ALPO and her appetite improved. Her health improved too, because ALPO, with meat by-products, beef, soy, vitamins and minerals has everything a dog needs every day.

"We'd always heard that ALPO had every vitamin and mineral a dog needs every day—now we know it's true. Because after just a few months of love and ALPO, that dog has so much energy and spunk that we can hardly keep her down. Now Spirit sure lives up to her name."

ALPO and love—they make a difference.