

# Today's **Animal Health**

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**HEAT  
STRESS**



# Today's Animal Health

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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.

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**My doctor  
pronounced  
me cured  
of cancer.**

**My boss didn't.**


My boss didn't understand that I was healthy again.

So I was let go.

A lot of people are like my boss. They think that everyone dies of cancer. I thought so, too. Until the American Cancer Society, through one of its service and rehabilitation programs, helped me return to a normal life.

The ACS also has local Units that help Americans who've never had cancer understand it better.

Today, more and more, cancer is a curable disease. Ignorance about cancer is curable, too.

 American Cancer Society

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## dialogue

How can we Americans expect to effectively influence Canada to terminate its annual kill of harp and hood seals while we still conduct a very similar slaughter on our own territory? Every year, tens of thousands of Alaska fur seals are bludgeoned to death for their furs on the Pribilof Islands — entirely within the jurisdiction of the U.S. Government.

Let's redouble our efforts to stop this brutality and squandering of marine mammal life within our own territorial limits. Then, and only then, can we protest to Canada from an ethical posture.

**Bill Clark**  
Vice President  
Friends of Animals, Inc.  
New York, N.Y. 10023

I am extremely pleased with your magazine. Keep up the good work. Thanks.

**Miss Roberta E. Link**  
Sebastian, Florida 32958

I wanted to let you know how much I have enjoyed **Today's Animal Health**. I would recommend it to anyone. I have learned so much and it is so interesting. I think it is wonderful — anyway, animals **are** very much a part of this world.

**Cindy Crutcher**

Please accept my check of \$15.00, for a subscription to the **Animal Health Magazine** and the extra \$5.00 to go to your fund to help older, low-income pet owners. It is one of the most worthwhile causes I have heard of in a long, long time.

As an owner of 3 sweet little dogs myself, you can count on my continuing support as long as I am financially able.

A special "hug" for all of you involved — you **must** be **great** people!

**Dee Knott**  
Whittier, California 90605

Kindly advise Helmut V. Schuldt, Tacoma, Washington, whose comments appeared in your January/February issue, that anyone finding a dog tattooed inside the right thigh with an owner's 9-digit Social Security number should immediately report this dog to the National Dog Registry, 227

Stebbins Road, Carmel, N.Y. 24-hour telephone service, 365 days a year, at (914) 277-4485. We tried to call Mr. Schuldt, but he is not listed with the telephone company. National Dog Registry is now in its 14th year of successfully reuniting owners throughout the country with their dogs so tattooed and registered with the NDR.

**Mrs. Dagmar S. Swanson, Manager**  
National Dog Registry  
227 Stebbins Road  
Carmel, New York 10512  
(914) 277-4485


## A stroke is not only a caress

Nor is it just a way to swim.

A stroke in the medical sense occurs when an artery or other blood vessel that supplies blood to the brain bursts, or when circulation to a part of the brain is cut off by a clot. This starving the brain of oxygen-rich blood irreversibly damages affected brain cells.

Effects of stroke may be slight or severe, temporary or permanent. Many stroke victims can resume normal lives after treatment and rehabilitation. Others may survive crippled, or die.

You can reduce your risk of stroke by having your blood pressure checked, and keeping it under control if it's high. To further reduce your risk, eat sensible, heart-healthy foods.

The American Heart Association   
**WE'RE FIGHTING FOR YOUR LIFE**



# ask Dr. Smithcors

**Q** My dog has a severe allergy, and the veterinarian has given him a type of cortisone. He did tell us that there are some side effects of cortisone, but he didn't enumerate them. Could you tell me what effects we should look for? F.C.F., San Juan Capistrano, CA.

**A** The list of possible side effects of various cortisone preparations is as long as your arm, but most of these are likely to occur only when the drug is misused or given for too long a time. This was more of a problem when these drugs were first used and their actions were not fully understood.

Some animals are overly sensitive even when cortisone is given properly. If your dog is one of these, you would have known it long before this. The most common side effects are increased thirst and appetite, weight gain and excessive urination. With extended use there may be muscle weakness, fluid retention (dropsy) and distention of the abdomen, behavioral changes, pigmented spots on light skin, thinning of the skin if used locally and decreased resistance to disease. Sudden withdrawal of medication may leave the animal unable to cope with even mild stress, so dosage is usually "tapered off." As with any other drug, if your dog shows any unusual effect, you should let your veterinarian know immediately.

**Q** What can I do to stop my cat from licking the rug? Could something be missing from his diet? I feed him Purina Cat Chow. Could there be something in the rug he likes? Is this likely to hurt him? Nothing I have tried seems to help, and I am desperate for an answer. J.S., Claremont, California

**A** First, any of the good commercial cat foods should provide adequate nutrition, so we can rule that out. Also, unless he eats a lot of the rug material it isn't likely to hurt him, although I can imagine your parents might have considered more than just a severe reprimand at times. Some cats like especially to chew on wool or may seize upon whatever is available, but I will assume that taking up the rug is not a practical solution. Unfortunately, this behavior pattern tends to develop early, perhaps by having been taken from the mother cat too soon, and it is usually difficult to break.

One method that has worked for various kinds of abnormal or unwanted behavior is to have a

water pistol, plant sprayer or aerosol can of room deodorant handy and give the cat a quick spray whenever he engages in the undesirable act. In so doing, however, you must be sneaky and not let the cat see that you are administering the punishment. To be effective, this would have to be done every time he starts licking the rug, at least for several days — and then there's no assurance it will work. However, you should not hit him with your hand or a newspaper. The idea is to punish him gently without letting him know it is you who are doing it.



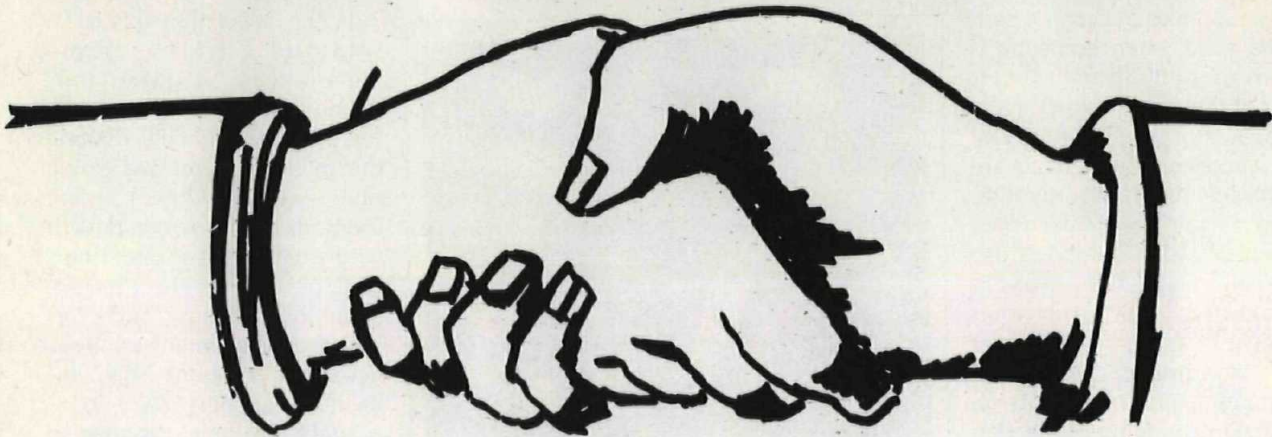
In the belief that this is an infantile trait, some veterinarians suggest providing a baby's bottle and milk for a time, gradually diluting the milk until you are giving only water. Others have claimed some success with very small doses of phenobarbital or one of the "mood-changing" drugs such as Psymod. You might ask your veterinarian about this. Individual animals vary considerably in their response to training techniques or drugs, and none of these may help much — but at least they won't hurt your cat.

**Q** Our dog has a "dry eye," which the veterinarian says is caused by lack of tear production. What would cause that? Is it something we did wrong in raising our dog? C.C., New York, NY

**A** You can rest easy, because it is highly unlikely that anything you may have done would cause a dog to have a "dry eye." The lack of tear production, which most often affects only one eye, may come about in numerous ways and often the cause cannot be determined. In some breeds (Yorkies, Chihuahuas, Miniature Pinschers) it occurs as a congenital defect in which the tear glands are lacking or nonfunctional at birth. Injuries to the head or various eye diseases may cause temporary or permanent dry eye. Several poisons including botulinus toxin (food poisoning) have a direct effect on the tear glands, but these are rarely encountered in dogs. Vitamin A deficiency has a drying effect on the cornea, but this would rarely be a cause. Dry eye can be treated by using artificial tears, if there is some hope for return of normal function. Otherwise a surgical operation in which the duct of the parotid salivary gland is transposed to the corner of the eye may be necessary to preserve normal vision.



# ISRAEL, EGYPT JOINT DISEASE STUDY



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By BRUCE KAPLAN, D.V.M.

Peace in the Middle East is becoming a distinct possibility. The Israelis and Egyptians are communicating face to face.

Soon after the peace initiative of Egypt's President Anwar Sadat to Israel, Prof. Daniel Cohen, director of the Isan Center for Comparative Medicine, Ben-Gurion University, Beersheba, Israel, contacted a representative at the United Nations Environmental Protection Agency in Nairobi, Kenya. Arrangements were made for a proposed joint-cooperative research project between the Israelis and Egyptians on Hydatid disease in camels.

Dr. Cohen said in a telephone interview from Philadelphia (he was in the U.S. on a fund-raising mission for the Center): "I decided to forget about all this business of indirect contacts and simply proposed direct contacts through the UN myself. So I sent a

telegram and the Egyptians indicated an interest."

According to Dr. Cohen, the Israelis have about 20 similar scientific research projects (including the one involving his department) that they and the Egyptians are interested in investigating together.

Hydatid disease is a serious type of tapeworm infection that is generally transmitted to man from infected dogs. Cysts may develop in the human liver or lungs. Other organs may be affected. Death may occur, depending upon the location of the cyst or cysts. Otherwise symptoms are variable. Sometimes early surgical intervention may effectively remove the cysts.

The infection occurs commonly in the Middle East, southern South America, eastern Australia, New Zealand, North Africa and south-eastern Europe. It rarely occurs in

North America.

The Israelis and Egyptians had previously been interested in this project. But originally, the Israelis were to work directly with the Nigerians and Kenyans. The Egyptians were to confer indirectly.

"If we get the political green light we will proceed to jointly investigate the relationship between the disease in camels and man. Over 90 percent of camels are infected. While I'm in the U.S. I will be stopping at CDC (The Center For Disease Control, Atlanta, Ga.) as they will be providing technical assistance for the project if it comes about," Dr. Cohen said.

He added, "This got a big play in Israel's press, TV and radio. The interest was immense, especially after Sadat's visit."

Just another example of how peace on earth, good will towards men can help all living creatures.



## Intense Sunlight Contributes to Eye Cancer in Dogs

Wind, dust, and viruses have also been shown to enhance the development of cancer and were taken into consideration in this study.

**By Margaret H. Bryan**

Scott Dugas, DVM of Gainesville, Florida, states that corrective surgery is not necessary and, in fact, he has never performed such an operation. He has seen tails with a slight curve to approximately a  $\frac{3}{4}$  curve at most. Dr. Dugas adds that the "kink tail" is most seen in Siamese cats due to their genetic nature. He believes this must be a recessive characteristic in Siamese cats.

Mo. Yr.

Master Charge includes 4 digits above your name








# THE PITFALLS OF PET TRAVEL & HOW TO AVOID THEM

*"There was some genuine worry about my traveling alone . . .  
For this reason, I took one companion on my  
journey — an old French gentleman poodle known as Charley . . .  
He is a good friend and traveling companion and would  
rather travel about than anything he can imagine."*

John Steinbeck, "Travels with Charley"

By **MICHAEL NORMAN** (Reprinted from The New York Times)



Whether it's an old French poodle in the cab of a custom-made camper or a Siamese cat tucked between suitcases in the belly of a 747 jet, every year thousands of pets travel with their masters. How an animal weathers the trip and what shape he's in upon arrival depends on everything from the time of day he travels to the size of its nose.

The traveling pet is thus exposed to a series of potential pitfalls, and some of them may be fatal. Most travel companies claim the risk is minimal, but the experts, the people who work with

animals, contend that their experience has sometimes taught them otherwise.

What follows is a basic primer on pet travel for the uninitiated. Keep in mind that this is a general guide, and that each species, breed and individual animal, for that matter, has its own peculiarities. Even the experts say that you know your pet better than anyone else.

## HOW TO PREPARE

Animals not accustomed to travel quickly become disoriented. This condition, together with loud noises, high or low temperatures, changes in air pressure and the motion of stops and starts, takeoffs and landings, places the animal in a stress environment. Like you and me, animals suffer from anxiety, but you can take measures to help them to cope.

Take your pet to a veterinarian at least two weeks before you leave on your trip. Make sure he declares the animal healthy and fit for travel. Some short-nose or

blunt-muzzle dogs — pugs, bulldogs, Boston terriers and the like — develop breathing problems and travel badly, especially in confined areas. Many people leave them at home or board them. Consult with the veterinarian about giving your pet tranquilizers or Dramamine. Several pet books and animal authorities advocate the use of drugs. Others insist that tranquilizers lower the animal's natural ability to adjust to strange surroundings.

A few states and most foreign countries require shots or vaccinations for animals before entry. Many veterinarians have a book published by the United States Department of Agriculture that lists domestic and Canadian requirements and tells you if your animal will be quarantined. The book, "State-Federal Health Requirements and Regulations," is available in some public libraries.

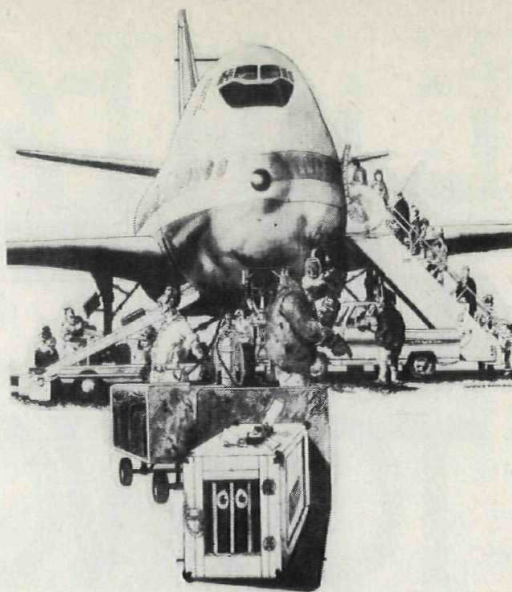
Most airlines are aware of the foreign restrictions and will supply information and necessary forms. To be absolutely safe, call the country's consulate before you leave. No matter where you travel, don't forget to check — Hawaii, for example, requires a 120-day quarantine for cats and dogs and the state Government will charge you for boarding, \$180 for cats, \$220 for dogs.

On airplanes and trains, your animal must travel in a kennel or pet carrier. Make certain the one you select is large enough to give the animal room in which to stand up and turn around. It should be made of sturdy, high-quality plastic with steel screen doors or side vents. The floor, if possible, should be raised so there is room for absorbent padding underneath. In less exotic models simply tear up plenty of newspaper. The door should be fastened securely. Trans World Airlines officials tell the

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# THE PITFALLS OF PET TRAVEL & HOW TO AVOID THEM



story of a large, black angry dog that broke loose from his kennel during flight and was in an ugly mood when baggage men opened the cargo door to unload — apparently the animal felt an obligation to guard the luggage and would let no one approach for the 25 minutes it took to find the animal's owner.

Pet handlers recommend that you avoid wood or pressed fiberboard carriers. There is at least one documented case of a small dog that chewed part of his fiberboard kennel in transit and died of gastroenteritis.

Attach a label to the top of the kennel listing the animal's name, special handling instructions, if any, your home address and telephone number and your destination or vacation address and a telephone number where you can be reached. The American Society for the Prevention of Cruelty to Animals (ASPCA) reports cases in which pets sat in cargo terminals for hours or days while travel personnel tried to locate the owners.

Most domestic airlines and Amtrak sell the sturdy plastic kennels. They are new, made, in most cases, by the Dorskocil company and are usually less expensive than the brands carried in pet stores. Prices range from \$15, small size, to \$35 for large models and are available at major airports and at the 36 Amtrak stations that handle checked baggage.

Remove your animal's collar and leash and do not leave them in the kennel. An animal can become entangled in his leader and kill himself. Do not muzzle the pet; you may restrict his breathing and he could suffocate or choke on his own saliva. Feed your animal eight to 12 hours before departure time; if he gets motion sickness and is traveling alone in a baggage compartment, he could drown in his own vomit.

## HOW TO GET THERE

**Airlines:** With the exception of poisonous snakes, most carriers will accept any domesticated pet, even a coypu (a South American aquatic rodent). If the animal is small, about seven or so inches tall, and can fit in a container or kennel less than eight inches in height, he can travel in the cabin with you. However, the limit is usually one pet per cabin; i.e., one in first class and one in each tourist compartment on the larger jets. This rule applies on a first-come-first-served basis so make your

reservations as early as possible. The pet must remain in his kennel during flight, and the kennel must be stored under the seat in front of you during takeoffs and landings.

If the cabin quota is filled or your pet is larger than the rule allows, he can travel as "excess baggage" in the cargo or luggage hold — of which more later. Again, make your reservations in advance and when you call, inform the agent your pet will be traveling with you as excess baggage. Some airlines put a limit on the number of pets they will carry in the cargo hold. Try to have a direct flight; a few animals have been "misplaced" or "temporarily lost" during transfers, especially between different airlines. Some airlines require that you make the actual transfer yourself.

Arrive at the airport at least 45 minutes prior to takeoff. Do not let the reservations clerk put your pet's kennel on the baggage conveyor belt. Put your animal in the kennel, carry it to the boarding area, hand it to an airline employee and ask him to make sure personally it gets on the aircraft. When you arrive at your destination, reverse the procedure and ask an employee to pick your animal up and bring him to you. The airlines are apt to be more accommodating if they are not busy, and since pets require special handling, try not to book a flight during peak travel periods such as weekends and holidays.

Generally speaking the fare per kennel on domestic flights is \$15, cabin or cargo hold. On international flights the charge is computed according to weight, size and baggage allowance. Whatever your plans, write the airline and ask for its brochure on pet travel and an explanation of the rates.

**Trains:** Rules and regulations vary on different rail lines but the procedures followed by Amtrak are a good rule of thumb. Like the airlines, Amtrak will accept almost any animal and all must travel in kennels. However, on trains animals must travel in the baggage car. Until recently, pets were allowed to ride in sleeping cars, but on long runs their personal habits had a malodorous effect on the car's environment and, according to a spokesman, "there was a lot of screaming about this."

When you call for a reservation, make sure the train has a baggage car and that both your departure and



arrival stations handle checked baggage. Pets cannot travel on Metroliners, Amfleet trains and some short-haul trains not equipped with baggage cars. On long hauls, pack enough pet food. Amtrak says its personnel will water the animals at station stops along the way. Passengers are allowed to feed and exercise their pets at station stops of 10 minutes or more. This also is a good opportunity to clean and freshen the kennel.

First-class passengers are not assessed an excess baggage charge. Coach travelers are charged a rate based on the total weight of the pet and kennel. For example, on the average it costs about \$16 to send an average size dog from New York to Miami.

**On the road:** Animals are not permitted on the major interstate bus lines in the continental United States — not enough room, say spokesmen for Greyhound and Trailways. Some intracity lines also bar pets. On others it depends on the prejudice or predilection of the driver.

Cabs to and from the airport or station could also be a problem. A hack with a brand new rig may balk at a Great Dane or boar in the back seat. Keep the animal in his kennel, smile and try to convince the driver it's just another piece of luggage.

If you're traveling cross-country by car or camper, call the motels, hotels or campsites where you plan to stay and ask them if they allow pets. Many camping and travel guides list this kind of information. A particularly helpful pamphlet is "Touring with Towser, A Directory of Hotels and Motels that Accommodate Guests with Dogs," available for \$1 from the Gaines Dog Research Center, P.O. Box 1007, Kankakee, Ill. 60901.

## ALONG THE WAY

Complete figures are not available, but there have been casualties in recent years among animals transported in the cargo holds of jet aircraft.

The problem can start on the ground if the animal is left sitting in the open exposed for long periods of time to extremes in temperatures, the whine of engines and the exhaust fumes from service vehicles. The pet can either begin to overheat or chill or become so stressed that no matter what the conditions in the hold, he will suffer during the journey.

Once loaded, the animal is exposed primarily to two dangers: heat and humidity and restricted ventilation. There are a number of factors that affect the temperature and air flow in the baggage compartment of a big jet. Generally speaking, the longer the airplane sits on the ground — either waiting to load supplies or stacked up for takeoff — at midday or early afternoon in a bright sun, the hotter the hold is going to get. And if a careless cargo manager allows that hold to be overstuffed with luggage, it will drastically cut down the amount of breathable air your pet needs for a safe trip.

Too much heat or not enough air can result in either heat prostration or hyperventilation for your pet. Both can prove fatal.

To insure the safety of your pet, the following advice is offered by the ASPCA, the American Dog Owners Association, the more thoughtful airlines and Jack Perlee, the director of environmental engineering for Douglas Aircraft Company:

- During warm weather, late April through late September, travel early in the morning or after sundown.

- Call the airport before you leave home and ask them for a ground condition report; if it is 80 degrees or more at the airport and the humidity is high, don't put your pet on the airplane — try to reschedule your flight.

- Instruct the airline agent who is carrying your pet to the loading area to delay boarding the animal until 15 minutes or a half hour before takeoff.

- Pick up your pet immediately after landing; don't leave him sitting on a loading dock in the hot sun.

- Don't travel during peak periods; again, the less luggage in the cargo compartment, the more "free air volume" and that's important. (For a complete explanation of this and other conditions in a baggage hold, write for a booklet entitled "Safe Animal Transportation in Passenger Aircraft," published by the McDonnell Douglas Corporation, Douglas Aircraft Company, 3855 Lakewood Boulevard, Long Beach, Calif. 90801.)

- Some professional dog and cat handlers and animal hobbyists and authorities have informally rated a few carriers and even some aircraft as better than others. There will be no attempt to do that here. Your own instincts should prevail. If the ticket clerks or airline agents can't answer your questions or allay your concern, ask to speak to the cargo manager and remember the words of Herbert Spencer: "The behavior of men to lower animals and their behavior to each other bear a constant relationship."

- Amtrak warns: Do not take your pet on a prolonged train trip during cold weather in a northern climate. The baggage car is not heated and short-haired animals might suffer. No one reports any problems with summer travel on trains, but, again, it's a good idea to avoid traveling in extremely hot weather.

- In passenger automobiles or campers, do not leave your animal inside a parked vehicle with the windows rolled up. On a hot day, the vehicle can become an oven. And don't let your dog hang his head out the window while you're cruising along at high speeds. The road grit and wind friction irritate the animal's eyes and road cinders could permanently damage them.

- In a state or national park, keep your animal on a leash and do not give him the run of the area; wild animals, notably foxes, skunks, raccoons and bats, carry rabies.

No matter how you travel, remember that you are exposing your animal to changes in everything from air pressure to drinking water. Thus, you should be careful and take precautions. Even as traveled a pet as Steinbeck's Charley had to be safeguarded. Wrote Steinbeck:

*With the [hunting] barrage going on in Maine, of course I was afraid for myself. Four automobiles were hit on opening day, but mainly I was afraid for Charley, I know that a poodle looks very much like a buck deer to one of those hunters, and I had to find some way of protecting him. In [my camper] there was a box of red Kleenex . . . I wrapped Charley's tail in red Kleenex and fastened it with rubber bands. Every morning I renewed this flag, and he wore it all the way west while bullets whined and whistled around us.*



# ANIMAL BEHAVIOR by C. P. Ryan, D.V.M. PART II

## EATING AND DRINKING

**A**nimals have a variety of feeding and drinking behaviors, depending on the species. People studying animal behavior prefer to use terms that are supported by direct observation, such as feeding and drinking rather than hunger and thirst, since whether animals have these subjective experiences is open to question. What do we mean when we talk about behavior? Basically, behavior is the response of an individual to his environment.

### DO ANIMALS HAVE HUNGER PANGS?

A need for food stimulates an animal to eat, but how this is accomplished is largely unknown. It was thought at one time that the stimulus to eat was the result of stomach contractions and accompanying "hunger pangs," but when it was shown that animals without stomachs show no loss of appetite, the concept of "hunger pangs" and stomach contractions had to be abandoned. When your dog wants to eat he may let you know by going to his empty food dish and waiting patiently, or he may become impatient and start barking. Your cat may follow you around the kitchen and constantly be under foot until you feed her. Horses may meander over to the feed trough, while cattle and sheep may seek a nice patch of grass.

People are aware that pets usually discriminate when they eat, and other domestic animals do the same. When cattle and sheep graze on pasture, they may sniff the grass and are selective grazers. They not only show preferences for certain plant species, but also for the same species at different stages of growth and even for the various parts of an individual plant and for individual plants within a species. Interestingly, cattle do not spend their nights sleeping as we do, and some scientists do not believe they sleep at all. If cattle do sleep, it is just for brief periods. During the night cattle spend a good portion of the time ruminating, or "chewing their cud." Cattle like to ruminate while lying down but can also ruminate while standing. Basic rumination is quite simple; a bolus of feed is regurgitated and rechewed with lateral grinding movements of the jaw. Cattle, goats, and sheep are called ruminants because of this behavior.

### FOOD GATHERING VARIES

Adult cats and dogs tend to eat one main meal during the day, but farm animals, such as cattle, horses and sheep, tend to eat their way through most of their waking hours. Several pounds of grass or hay equal the nutrients found in one pound of canned pet food. The method of getting food into the mouth also varies in

domestic animals. Cats and dogs grasp their food with the teeth whereas cattle use their long, prehensile tongues to bring grass into their mouths. It might be more appropriate in cattle to refer to a tongue full of food rather than a hand full of food. Horses make use of their very mobile lips when grasping hay.

There are a variety of factors that influence food intake in animals. The environmental temperature has an effect on food consumption. Your cat or dog may have a decreased appetite during very hot summer weather, often just lying around, keeping cool, and caring very little for food. Animals kept outside in cold winter weather need considerably more food just to keep themselves warm. A hunting dog kept in an outdoor kennel in cold winter weather may eat 30% more food just to keep warm. As your fuel bill climbs during the cold weather, so do an outside animal's fuel requirements increase. requirements increase.

### APPETITE GENETIC BASIS

Interestingly, animals eat more when fed in groups rather than alone. Just the sight of other animals eating has a positive effect on feeding. When a chicken is allowed to feed on grain, she will eat until satisfied and then stop. If another hungry chicken is then introduced, the satisfied chicken will eat 30% more grain. If three hungry chickens are introduced, she will stuff herself with an additional 50% more grain. Appetite can have a genetic basis, as is seen in certain families of pigs which have strong feeding drives. This behavior is used by the farmer to develop pigs that grow faster because they eat more.

Like ourselves, animals may prefer some variety in the food they eat. Animals that are fed the same diet constantly will often seek variety and try different diets if given the opportunity. In a study of kittens at weaning fed exclusively one of three different palatable, nutritionally balanced canned cat foods until five months of age and then offered one of the other canned foods, almost all cats went for the different food to begin with, and later they consumed both foods about equally.

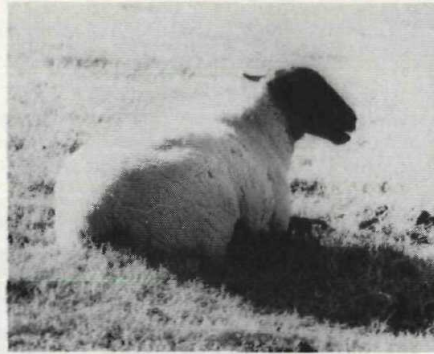
When a food is low in nutritional value, a large amount must be eaten to meet the body's needs, and something often not realized is that a large volume of stool is then produced, making a messy situation for the animal owner. Animals tend to keep their body weight within normal limits even when the amount of bulk, or non-nutritive material, varies in the diet. With high bulk foods, animals usually just eat more often rather than eating more at one meal. Unfortunately, some cats,

*Continued on page 31*





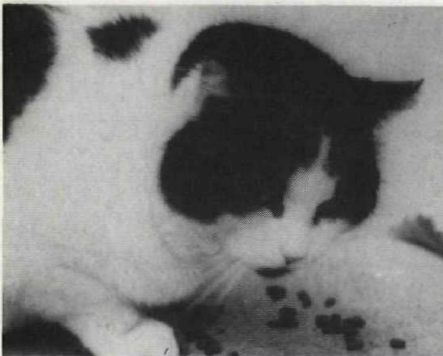
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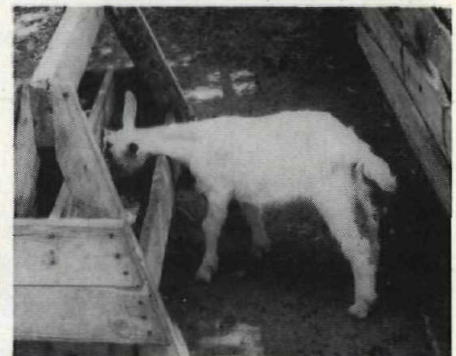
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**1** **HEREFORDS GRAZING.** Range cattle spend a large part of their day grazing, and their activities tend to be coordinated. When grazing, the grass is chewed two or three times and swallowed while at the same time the head moves from side to side seeking the next patch of grass.

**2** **INDIVIDUAL SHEEP.** When ruminating or chewing their cud, sheep and cattle typically lie down with the forelegs bent under the chest. Rumination is the act of regurgitating, rechewing and then reswallowing previously ingested food. Chewing roughages a second time enhances the digestion process greatly.

**3** **PUPPY.** Young growing animals require several feedings daily. After inadvertently not being fed for 1½ days this puppy went into a coma caused by low blood sugar. Intravenous glucose revived the puppy who got up and started eating as can be seen.

**4** **THE LONER.** Here an adult roaming male cat prefers to eat alone. When fed with other cats, fighting would break out as he would always try to dominate the food.

**5** **HEIFER DRINKING.** Cattle drink by dipping their muzzles into the water and then water is sucked into the mouth. Mature cattle drink

several gallons of water daily. Dairy cattle often drink immediately after milking.

**6** **GOAT BY FEED TROUGH.** When feeding various sized animals in a confined area, it is best to have some feeders for young animals separate and accessible only to the young. Here a young goat goes to the feeder after the adults have eaten and finds the feeder empty.

**7** **PIG BY MACHINERY.** The snout of the pig is highly developed and is used in exploration and food searching. In searching for buried food the pig first determines where to root by olfactory cues and then uses the snout as a digging tool to uncover morsels of food. The majority of pigs root.

**8** **CHICKEN EATING.** The normal pecking and swallowing of grain requires some experience. Initially chicks peck both dirt and food. Adult chickens feeding in flocks develop a pecking order with the most dominant at the top of the hierarchy.

**9** **FLOCK OF SHEEP.** In the hot part of the day sheep conserve their body water in various ways. Here the flock is taking advantage of the shade offered by a fence.



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# THE FROZEN ZOO OF DR. HSU

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The University of Texas  
System Cancer Center

Two hundred years from now, children may have the chance to see a living animal which has become extinct, thanks to Dr. T. C. Hsu's frozen zoo on the fifth floor of the University of Texas M. D. Anderson Hospital and Tumor Institute.

There insulated boxes hold several thousand small ampules, each containing between 60 and 100 million cells of an individual mammal, kept at sub-freezing temperatures. The ampules represent some 300 species,

Dr. Hsu, chief of cell biology at M. D. Anderson, believes that future scientists might be able to reconstitute the original animals from the genetic information stored in the cells.

"There is no way at present to freeze a whole animal and bring it back to life," he says. "But stored in liquid nitrogen, the animal's cells can be preserved for a thousand years if that is how long it takes for man to learn to manipulate a cell so that it will differentiate into a complete animal."

In fact, cloning has recently been a favorite topic of science fiction stories. But Dr. Hsu's collection of exotic pets began with a less remote goal.

"In 1961, we were searching for mammal cell lines suitable for certain studies and were unable to find any standard research animals whose cells had the right chromosome properties," he says. "So we began to look at the chromosome characteristics of mammals available in the United States.

"First stop was the Houston Zoo. Dr. George Luquette, then veterinarian

at the zoo, helped develop the techniques for getting tissue samples from animals," Dr. Hsu continues. "With his help, we began with the large cats.

"However, I soon realized how limited the animal collections of zoos are," he says. "For instance, the Houston Zoo has only two kinds of bats — vampire and flying fox — when there are hundreds of species."

Dr. Hsu decided he needed the aid of some mammalogists, not only to collect samples, but to identify the various species. Graduate students, he found, were the best source of help.

Once started, the collecting snowballed. Interested students soon had their friends involved and, as they received their degrees and took jobs throughout the world, they continued to send back tissue samples.

Dr. Hsu's collecting is not as active now as it once was, since the San Diego Zoo recently began a similar preservation project.

Dr. Hsu, who has an importer's license, says he generally likes to have the live animal if possible, but tissue samples are preferable to nothing. "The collector simply sterilizes an area of skin and takes a small biopsy," he says. "Placed in a small bottle of growth medium, the tissue will live for a couple of weeks — long enough for it to be mailed to us.

"We take the tissue, culture it and then type the cells," he says. "Soon after we started we realized we couldn't maintain all the cell cultures

continuously. Freezing techniques were just becoming available, so we decided to use them to preserve the cell lines."

Until recently the cell line ampules have been kept in dry ice, but Dr. Hsu is transferring them into liquid nitrogen freezers where the cells are kept at minus 190 degrees C. At this temperature virtually all activity stops and the cells should remain viable forever, he says.

"There is no way at present to freeze a whole animal and bring it back to life," he says. "But stored in liquid nitrogen, the animal's cells can be preserved for a thousand years, if that is how long it takes for man to learn to manipulate a cell so that it will differentiate into a complete animal."

Meanwhile, the cell lines are being put to good use. The cultures make a wide variety of cells available for use in cellular studies. "We give them to researchers throughout the world if they need a certain type of cell," he says.

In addition, the cell typing has provided valuable information for scientists studying the relationship between species, and the evolution of one species into another.

"Many of these animals are near extinction, such as leopards and cheetahs," he says. "When the last one dies, genes will be lost forever unless we can save them this way. If this work will let children 200 years from now see the living beauty of a cheetah, it will be a worthwhile legacy."





# HEAT STRESS

**Warm weather hazard to dogs**

**By C. D. Evans, D.V.M.,**  
**Purina Pet Food Nutrition Research**  
*Reprinted Courtesy Ralston Purina Company*

**D**uring hot summer months or in areas where a warm climate normally prevails, dogs that are exposed to high environmental temperatures, high humidity, inadequate ventilation and at times excessive exercise may succumb to the effects of heat stress.

The potential heat stress victim is often a pet confined in an automobile (or other poorly ventilated enclosure) in hot, humid weather. Even if the vehicle is left in a shady area, shade cover may disappear over a period of time. The effects of direct sunlight contacting the car along with inadequate air circulation can be disastrous to the dog.

Most total body heat loss in man and animal occurs through radiation and conduction of heat from body surfaces. However, unlike man and other animals that have the ability to sweat freely, dogs have a relatively poor development of sweat glands so that less moisture evaporates from the skin. Dogs lose body heat primarily through breathing, by the vaporization of moisture in expired air. The common response in dogs to rising body temperatures is an increase in the rate of respiration. Breathing becomes faster but not deeper (panting), which causes an increased water and carbon dioxide loss. Prolonged exposure to high atmospheric temperatures and humidity or improper ventilation overtaxes the dog's heat-dissipating mechanisms and places an extra burden on circulatory and respiratory systems. These conditions are favorable for the onset of external heat stress.

## **TYPES OF HEAT STRESS**

There are three types of heat stress which may occur in animals. Prompt veterinary treatment is essential in all cases to save the animal from permanent impairment or death.

**Heatstroke** (also called sunstroke, hyperthermia) is the most common and most often fatal syndrome in dogs. It is associated with exposure to high temperatures and humidity and poor ventilation. Heatstroke develops rapidly. Physical symptoms include panting, a staring or anxious expression, failure to respond to commands, warm dry skin, extremely high fever (at times as high as 110°F), rapid heartbeat and collapse. Vomiting may also occur.

**Heat Exhaustion** or heat prostration is another form of heatstroke which may occur in animals following prolonged exposure to intense heat and heavy exertion. Salt deficiency may serve as a predisposing cause. Heat exhaustion develops less rapidly than heatstroke. It is characterized by fatigue, muscular weakness and circulatory collapse. Although heat exhaustion is not common in dogs, it may occur as a complication of cardiovascular disease.

**Heat Cramps** are painful muscle spasms caused primarily by the loss of considerable amounts of salt from the system and by severe exertion in hot weather. Heat cramps are rare in dogs; however, racing or hunting dogs may occasionally be affected if heavily exercised in intense heat.



## TREATMENT

In heatstroke cases, high fever must be reduced rapidly to save the dog's life and prevent permanent brain damage. Body temperatures of 106°F and above can be tolerated for only a few minutes before irreversible damage occurs to the central nervous system. The most effective treatment is probably immersing the dog in cold water. If this is not possible, an alternative is to spray the dog with cold water from a garden hose. Ice packs on the head and neck may also be applied. Recovery depends on prompt treatment. The animal should be taken to a veterinarian as soon as possible. Heat exhaustion or heat cramps must also be treated by a veterinarian.

## OTHER FACTORS

In addition to environmental conditions, other factors may influence a dog's susceptibility to heat stress. Puppies are more vulnerable to external heat stress than adult dogs. Elderly dogs are also more susceptible. Short-nosed breeds like the bulldog suffer more in hot weather. These dogs have greater difficulty in breathing, which reduces the amount of body heat loss. Obese dogs may be affected more readily than dogs in good body condition. Layers of subcutaneous fat in overweight dogs reduce the condition and radiation of heat from the body surface. General health is an important factor. Dogs with cardiovascular diseases or respiratory problems may be stricken under conditions which would not be hazardous to normal, healthy dogs. And dogs with a previous history of external heat problems are apt to be susceptible to a recurrence of heat stress.

## PREVENTIVE MEASURES

Most cases of canine heat stress can be avoided when dog owners and kennel managers observe a few hot weather precautions for dogs:

1. Never leave a dog in a closed automobile for any length of time in hot weather. This is a major cause of heat problems not only in dogs, but in young children as well.
2. Kennels should have adequate ventilation to provide good air circulation for dogs in summer months. Dogs should also have a well-protected rest area to escape midday sun and heat. If dogs are kept outdoors, some type of shade cover should be provided.
3. Avoid excessive exercise of dogs during hot weather. Overexertion is a common cause of external heat problems.
4. Keep plenty of fresh drinking water available at all times for dogs.
5. If a dog does exhibit signs of heat stress, move him to a cool place, apply cold water to the body, and consult your veterinarian at once.

Proper summertime dog care will help prevent external heat problems in your dogs.





# HOUSE MOTHER FOR KANGAROO ORPHANS:

Interview with Pat Olbrick of Mount Kembla, New South Wales, Australia

In August of 1978 our Editor, Richard S. Glassberg, D.V.M., presented a paper on Veterinary Acupuncture at the First Australian International Symposium on Acupuncture in Modern Medicine which was held in Sydney Australia. Dr. Glassberg had the good fortune to meet an unusual lady who is a client of one of his colleagues, Dr. Bruce Cartmill. Dr. Cartmill practices in Wollongong, a town close to Mount Kembla in New South Wales where Pat Olbrick lives. Pat maintains a nursery for orphaned kangaroos, wallabies and any other stressed wild animal that is sent to her. She describes herself as a "registered eccentric." The following is excerpted from the taped interview Dr. Glassberg had with her and edited by Jane Wright, our Associate Editor, and Judith Glushanok, a veterinary student from Bristol, England.



**RSG.** How long have you been trying to save these creatures?

**P.O.** Well, I started working with opossums in 1965. I spent a lot of time studying them. I used to go out at night and study them. I had a lot of female opossums and they would come down to feed and let me look in their pouches. The possum is a beautiful animal and he relates

more to man than any other creature. These little girl possums would come and I would get an idea of about how long their babies stay in the pouch — about 4½ months and they have 2½ babies a year. I learned a great deal about them — more than many people — but it was just a layman's study.



Anyway, I did that and then in 1969 a baby kangaroo was picked up out of her dead mother's pouch by a man and he had sense enough to put her in his shirt so she kept warm and didn't have the stress of no body warmth. Then they fed her cow's milk (her mother had been shot) and she was in a terrible state — badly dehydrated. I usually put them on 24 hours of boiled water. I'm no professional you know — I just do what I feel is right. Then they brought me this red kangaroo that had been scouring for five weeks and he was a mess. I called Dave Thomas at the zoo and they gave me some



help, but if only they'd analyze kangaroo milk. We just have to operate in the dark and try. We know to avoid lactose.

RSG. Would you say the majority of orphan baby kangaroos and wallabies that you get are the result of the mother being . . .

P.O. Shot or knocked by cars on the road. That's the only reason why. People shoot kangaroos because it makes them feel like a man — you know they say in this country, and I'm sad to say it being an old Australian, they say — "If it walks shoot it, if it moves shoot it, if it stands still cut it down."

RSG. Other than killing kangaroos just because they move and because they eat grazing grass, is there any other reason?

P.O. They are killed for pet food. The reds are facing extinction because of the pet food market. They get 400 cans of pet meat out of one big red. The very big ones are 7 feet tall — they are very strong with enormous weight in the tails and legs.

RSG. What is the main diet of the kangaroo?

P.O. Consider the area where they are — very very adaptable to the area. In the desert, they eat



desert grass, in rich areas, the rich grass. They are the highest converters of protein of all the beasts in the world. They look for and find whatever they need — they don't just look for that tree or that grass. Kangaroos adore leaves; this is why the dead leaves are left around here, not untidiness; but Bib, the darling red kangaroo, comes and has a little bit every time after her tea. All these little bits of wood — Bibby eats it all. There must be something in it — as soon as there's a piece of rotten wood after they've had a lot of green grass they'll go eat that.

That's Rory there — a little scrub wallaby, swamp or black-tailed wallaby. He's very much ready to go out, but my voice, the pitch of the voice upsets his ears. That's why I try to keep it down. Wallabies hop low — they keep their body low all the time. They are very aware and I'm not taming him because he's going to be going out into a nice big place where he can get all sorts of nice rough food.

RSG. Do wallabies get as large as kangaroos?

P.O. No. They're a more fleet disappearing animal. Their whole environment is hopping from rock to rock, getting away. They're very shy — very agile. The kangaroo is terribly vulnerable. Wallaby will be away long before you know he's heard you, whereas kanga stands there and says, "Put the bullet there." To me it's of course they haven't developed in evolution. I think we only develop capability of coping with an environment, say of heat and cold and food, but not of new predators.

The little wallaby — he only gets to be about 2½ feet tall — I disagree with raising them in a hot bed in the house sort of thing. Leaping from rock to rock and coping with a tough environment in their natural habitat their muscles get hard. We let them out of the reserves, they trip on a stone and break their leg. That's why I'm trying to get them as strong as possible. I take them for lots of walks.

RSG. Normally, all these animals are nocturnal?



P.O. Yes. All Australian native animals are nocturnal. Very little else. I want to show you a bandicoot. I've got a darling little bandicoot who comes in here. The night before last I went out and there was the bandicoot. He looks as if he's made of stainless steel, he's just got that slightly not so shiny look. He's very smooth and he's got a long nose and he's sitting there eating the bread. His little hands are working and his big ears listening all the time. I creep out and don't breathe. I can



# HOUSE MOTHER FOR KANGAROO ORPHANS:

move quite well amongst the animals — they smell me or have got used to me or something. And Bibs was on the other side of the tray — you know the darling red kangaroo — and she leaned right over and sniffed “Oh, it’s a bandicoot, yes, yes” and went right on eating.

**RSG.** How do new-born kangaroos get in the pouch? Do they crawl in or does the mother put them in?

**P.O.** When time for the birth comes, the mother takes up a position against a tree with her back like this. The baby comes out of the womb canal and the mother licks and licks ahead of it. She never touches it. Now, the baby has the only two things that it needs — it is a small piece of flesh with a mouth and two front paws. The rest of the body tapers into a stump. There’s no sign of the magnificent hind legs. There’s a small amount of blood because when Bip gave birth I found her with blood on her foot. I didn’t know whether she had mated with the big red who was brought to me dying. He’s the one who for five weeks was scouring and they wouldn’t bring him to me. They said they could fix him. He was up in Sidney in a clinic and had the whole of Sidney University and the most wonderful doctors and he had everybody. Usually it takes them three days to die. They have a psychological death like aborigines — when they are sick past a certain stage, they die. In the bush you never see a sick or damaged animal.

Anyway Bibs loved him. It wasn’t an ordinary relationship at all. They were inseparable and it took him 8 months to die. So she mated with him and had the little one.

The baby proceeds up into the pouch using its little front feet and fastens onto a teat then and stays there inside the pouch. The little front legs fasten around a teat and the next thing they develop are the very large ears.

Now I watched Bippy’s baby in her pouch. If you pick up Bippy and put a blanket over her, you could see. The baby was just like a tiny

blob of raspberry jelly with membranes through it. You could see the heart — you could see the blood vessels — you could see everything. But the body itself was a clear jelly tissue. Then it started to be milky, starting from the inside out and then it got fur. You could see the testicles quite clearly early so we knew it was a male from the beginning, but it was the most fantastic thing to watch.

**RSG.** It must be terribly vulnerable, crawling up into the pouch at that size?

**P.O.** The kangaroo is the most vulnerable animal I think of all creatures. It has no protection except its speed and most of the time it doesn’t even bother to run away.

**RSG.** How many babies does a kangaroo have?

**P.O.** After the baby has come into the pouch, about 4 days after that she will mate again. She then has a fertilized egg which lies dormant — that egg lies completely dormant. It doesn’t continue to grow. If something happens to the baby in the pouch, if it dies, or if as it grows bigger and the mother kangaroo is being chased, she will throw the baby out. I don’t think it is to lighten the load. I think it is to protect the baby and throw it into the bush. If this happens, the latent egg then starts to develop. So it’s difficult to say how many. I don’t know whether that egg will remain latent if a natural birth and a continuing carriage of the joey goes on or not. I don’t know — I don’t think anybody knows.

When the reds are about 8 months, the joey is out of the pouch and the mother keeps the pouch tight and won’t let him in again. The baby gets very frustrated and very upset and it’s a very traumatic time for them. I’ve watched the two that I’ve had here and wept for them because they wanted to get in, they clawed at Mummy’s pouch to try to get in and she just stands there. As soon as they just want a drink, she will allow them to get their head in, but they’re not allowed to jump back in. The pouch muscle is a fantastic thing. I’ve watched Bippy lying down and her pouch looked like — you know — an old pink cardigan you’ve washed and it’s gone all stretchy. Jerrup, her son that she had from Jerry (the one who died) is trying to get in and falling out because his mother doesn’t want him in. The moment she is ready to accept him, she’ll tighten the pouch muscles and make it resilient and in he gets!

I find that my kangas are only in season about once a year. They get a big upset and miserable and mooch around and I say “Oh God, you’re in season, dear.”



- RSG. When do the kangaroos reach their full growth?
- P.O. Maybe between 2½ and 3. But you see captivity is quite a different thing. I would say they reach maturity earlier out in the wild, but I don't know.
- RSG. Does it take them long to learn to groom themselves?
- P.O. No, they do it from infancy. It's the first thing you are happy to see in a survivor. It's a very important thing to see. It's a sign of health and interest in themselves — they will not groom if they're not well.
- RSG. What is a joey, exactly?
- P.O. A joey is a baby kangaroo — you have a calf, a lamb, a foal and a joey. It doesn't define sex at all. You say a doe or a buck for that, as with deer.
- RSG. Are there very many people that do what you do, rehabilitate these orphans?
- P.O. Yes, there are a few around. There are two people doing birds. Not many are doing this sort of work because, well, they haven't got the time. You've got to apply yourself. You've got to say "What is this animal's natural environment" and then you've got to try to build that environment.
- RSG. How do you finance this? It must be expensive to feed them, medicate them, take care of them.
- P.O. I have a very small income and almost all of it goes into the animals. They cost me just under \$5,000 a year, so that leaves me \$4,000 and the animals and I and the car don't use up much — it's only a little green car.
- RSG. Are there any organizations that help fund this sort of thing, saving animals?
- P.O. No, not this sort of thing. Various people have offered to help me. Now, if I put myself in that position, I then leave it open so that anybody can tell me what to do to an animal — and that's something I can't have.
- RSG. Then you feel you would lose your independence if you accepted contributions?
- P.O. Yes, exactly, but it's more of a judging independence — a decision independence.
- RSG. Do you have much trouble finding veterinarians?

- P.O. I have some who are interested and though they've done little work on roos, we share our experiences and I've gotten a lot of help from them. If something comes up that I think might occur in a domestic animal, I'll discuss it with them and go to them for advice, but if it is something special to the roos — I've had more cases than they've had cases and if I find something, I share it with them.
- RSG. Do you ever have to turn away orphans for lack of funds?
- P.O. Not for lack of funds, no. For lack of space and time. At the moment now I've walked around with you and this has completely thrown my day out and I'll probably get my dinner at midnight. I've got to go and spend an hour cutting grass and in one-half an hour I have to feed one of the babies. It is time. If people want to help one of them, they can come up here and watch me and then if they need me they can call.
- I can't do 24 hours a day. I do like to sit down and read a bit occasionally, but I can't.
- RSG. What's your feeling about people keeping these animals for pets?
- P.O. Never keep them for pets. They don't have the right environment. It's against the law here. These are all protected animals. They've only just become protected. We worked hard to get that.
- RSG. Do you need a permit to rehabilitate them?
- P.O. Well, I am **supposed** to fill in a form for every animal I get, but I'm afraid I haven't gotten around to it. The Rangers will come and put them out in the wildlife parks. But those parks don't have very good fences — and they have to have good fences. There's now 8 acres out of Sidney at Dural and it has an everything-proof fence — but it cost \$8,000 to put up that fence. And that money has to be raised.
- RSG. Who goes about raising the money for projects like this?
- P.O. The Animal Protection League which is a World League — and the Kangaroo Protection Committee. If the KPC can raise \$5,000, it will be matched by the World League. This joey nursery or orphanage has been a big project.
- RSG. We can see that you are terribly busy so we'll get out of your hair. All I can say is that if you are a "registered eccentric," the world would be a better place to live if we had more "registered eccentrics."



More and more communities are finding a deep well-spring of concern and devotion to animals among their residents, not only for their own pets but also for strays and the feral — and they are doing something about it. They now feel the need for special service hospitals and foundations to aid in their support.

One of the latest attempts to tap this reservoir of love for animals was the establishment in 1976 of the Veterinary Hospital for Special Services (VHSS) in Mount Kisco, N.Y. to serve affluent Westchester County. It hasn't been easy but it's working.

The way to success has been forged by the deep commitment of the eight owners, an active foundation, support from 34 veterinarians in the area, the hard work of its staff and genuine concern of a large community of sincere animal lovers.

Westchester is a county of 443 square miles with a population of nearly 900,000 and an average family income of \$31,893. The founders saw it as fertile ground in which to provide a real service to the many animal lovers in this large area who often had to make the long trek into New York City's Animal Medical Center for special veterinary services. After two years, however, the hospital was \$100,000 in debt and operating at a \$22,000 a month deficit. At this point, the owners and the Westchester Community Veterinary

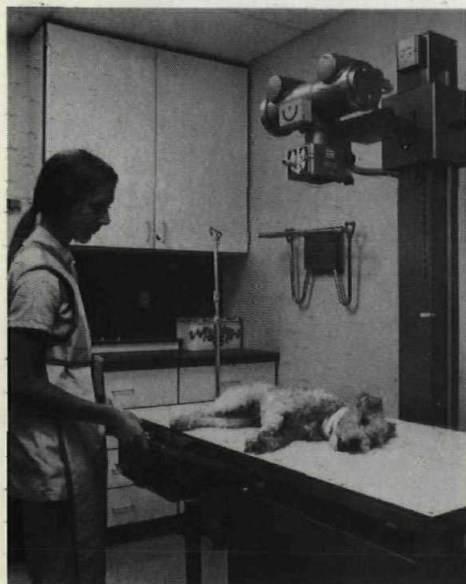
Hospital for Special Services Foundation closed the hospital for 10 days in February, 1978 for reorganization.

They brought in Joseph Carrillo, D.V.M., as chief of staff, and Jack J. Broadhurst, D.V.M., as medical and laboratory director. A member of the board loaned the hospital \$100,000 interest-free to re-establish its credit. Dr. Carrillo requested that the owners increase their financial commitment to help meet mortgage payments on the modern, 13,000-square foot building. He notes that they acceded not for financial but for idealistic reasons.

"They wanted to see the place go," he said, "and they agreed this was the way. They had already lost their socks and now I was asking them for their pants."

The foundation pledged its continued financial support. Meanwhile, veterinarians in the area were called to a meeting to discuss their reactions to the hospital and to gain their support. Communications, Dr. Carrillo noted, was the key to the situation. As a result, they promised the veterinarians a hospital that would provide: (1) emergency service 24 hours a day; (2) a full-time staff for referral of special cases; (3) complete laboratory service at least once a day and, if possible, twice a day. They pledged not to undermine veterinary practice in the County and that swift communication

# CARING N.Y. SUBURBAN AREA FOUNDS SPECIAL SERVICES ANIMAL HOSPITAL





would be maintained by telephone and letter. In addition they pledged acceleration of such professional contributions as lectures and short courses to furnish continuing education to veterinarians — and to the lay public. They also plan to establish a veterinary library as an information center for both the veterinary and lay community.

In return, the hospital administration, because it is limited in the type of cases it can receive through the front door, requested at least 10 emergency cases a night and an opportunity to handle the veterinarians' most difficult cases, to be followed by their use of the hospital's ancillary services, such as surgery radiology, laboratory, etc.

Because Drs. Carrillo and Broadhurst came from teaching backgrounds, they saw VHSS as a place where quality veterinary medicine and teaching could be accomplished. Such a program they reasoned would keep the place on its toes medically while providing valuable experience for the interns, who would help staff the hospital and enable it to give 24-hours-a-day service. Since June 14, 1978, James Cook, D.V.M., of Ohio State University, and Vicki J. Scheidt, D.V.M. and Thomas P. Meehan, D.V.M., both of the University of Missouri, have come on staff as interns. Dr. Meehan intends to enter zoo practice and has had some

experience with exotics. He is ideally suited to handle the large number of wild animal cases brought to the hospital.

Within six months, the drastic reorganization and the ambitious new directions taken achieved a turnaround at VHSS. It is a busy place with a professional staff of eight caring for 30 to 35 ongoing cases daily. The hospital is on a zero-deficit budget, and the clinic pays for itself through Foundation support. The \$100,000 loan is slowly being whittled down and the monthly balance sheet for September showed a profit. Emergency service, originally \$35 has been reduced to \$20. The hospital employs 10 veterinary nurses, four kennel aids (two part-time), four receptionists (one part-time), a bookkeeper, a billing clerk, two maintenance men and an ambulance driver who provides to-and-from-hospital service for patients of area veterinarians.

It now offers special services in neurology and nephrology (Dr. Carrillo); oncology, hematology and dermatology (Dr. Broadhurst); and cardiology and respiratory diseases (James Prueter, D.V.M.). Allen Carb, D.V.M., a board-certified surgeon, is a consultant available to two to three days a week for surgery until a full-time surgeon is engaged. Dr. Robert Goldstein, a local practitioner, is available for cryosurgery.

**1** **TERRIER TIME** — Lynn Kelderhouse, chief x-ray technician at the Veterinary Hospital for Special Services in Mt. Kisco, N.Y., slips a cassette containing film under the x-ray table preparatory to a radiographic examination of a wire-haired fox terrier.

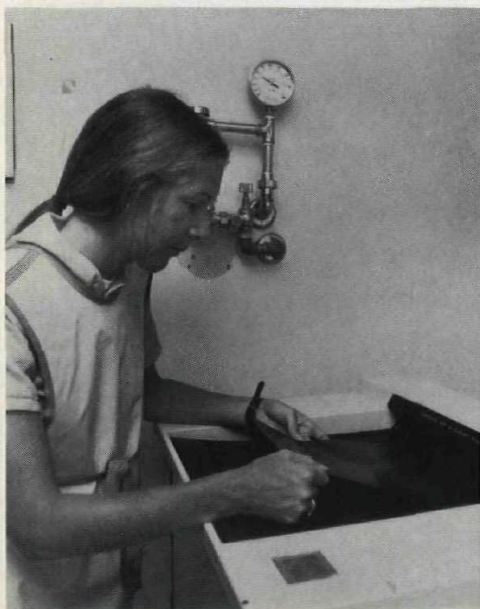
**2** **MAKING A MYELOGRAM** — Robert B. Barrett, D.V.M., injects contrast medium in the terrier to make a myelogram because the dog shows signs of a possible traumatic intervertebral disc rupture following an accident. Lynn Kelderhouse assists.

**3** **HUNTING BLADDER PROBLEMS** — Dr. Barrett injects air into the urinary bladder of a cat as he prepares for a pneumocystogram. The negative contrast provided by the air allows visualization of calculi, bladder stones.

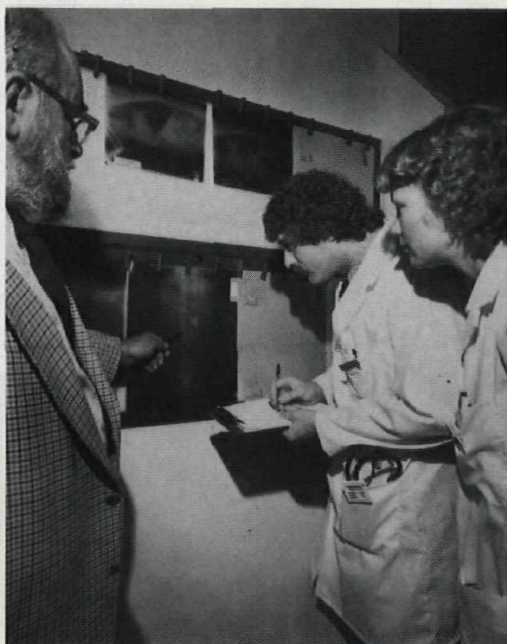
**4** **GETTING THE PICTURE** — Lynn Kelderhouse removes film from the processor which delivers a dry, ready-to-read radiograph in 150 seconds.

**5** **BONING UP** — Dr. Barrett conducts a film reading session for two or three of the hospital's one-year interns: James Cook, D.V.M., from Ohio State University, and Vicki J. Scheidt, D.V.M., from the University of Missouri.

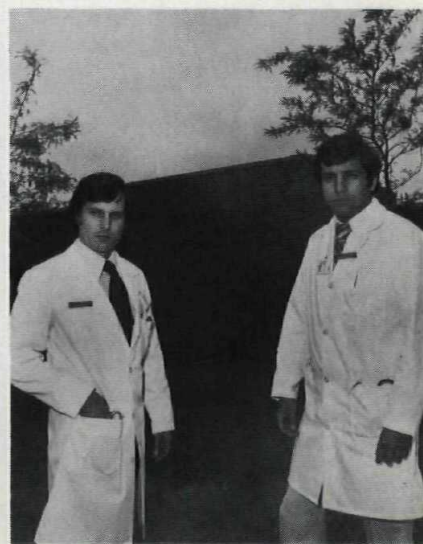
**6** **PRIME MOVERS** — Jack J. Broadhurst, D.V.M. (left), medical director, and Joseph Carrillo, D.V.M., chief of staff, are shown in front of the Veterinary Hospital for Special Services in Mt. Kisco, N.Y., which they administrate.



4



5



6



Robert B. Barrett, D.V.M., a consultant from Voorheesville, N.Y. (near Albany), provides expert radiological services once a week until such time as a full-time radiologist can be supported. Dr. Barrett reviews all x-ray studies exposed during his absence to check out the interpretations made by the staff and local veterinarians. Most special procedures such as myelograms and angiograms are scheduled for him to perform. He reads between 150 and 200 radiographs exposed on the 50 to 100 cases a week at the hospital.

"Radiology is the hub of the wheel in a special hospital situation," Dr. Barrett said, "because a majority of animal ailments are often best diagnosed radiographically. There also is the serendipity factor — the incidental finding that reveals an unsuspected condition. Up to 20 percent of routine x-ray studies here demonstrate pathological processes for which the patient was not presented."

Dr. Barrett feels fortunate to have a Kodak X-Omat processor, model M7, a gift of John Durand, vice president of the foundation, because it provides consistent results with the quality films he uses. The processor is located in the x-ray examining room and separated from the Bennett 300 mA, 150 kV unit by a windowed lead shield.

As part of the continuing education process at VHSS,

Dr. Barrett also conducts film-reading seminars with the staff and discussions with veterinarians who have patients in the hospital.

The hospital is set up much like a medical hospital for human beings. Veterinarians in the area use it as attending physicians do the medical counterpart. They can secure a "bed" (cage) for their patients, scrub up and use the surgical facilities, avail themselves of the specialists on hand and use radiology and laboratory services they may not have in their own offices.

The hospital also has made good on its promise to provide fast laboratory service and in October, 1978, installed a Technicon Nova SMA 12 that can deliver blood chemistry profiles once or twice a day. Where before Westchester veterinarians had to wait several days for results which might be required within hours to help diagnose and treat an animal properly, they now have results in several hours. Any time, day or night, the laboratory can provide any of the following: creatinine, SGPT, albumin/globulin, total protein, inorganic phosphate, calcium, total bilirubin, alkaline phosphatase, LDH, SGOT, glucose, BUN and amylase.

The Westchester Community Veterinary Hospital for Special Services Foundation is a unique organization and a vital part of the hospital. Its 24-member board of 12 veterinarians and 12 lay persons is headed by

**7** **GOOD BEGINNING** — This is the reception room at the Veterinary Hospital for Special Services in Mt. Kisco, N.Y. It is done in deep yellows and reds accented with white and the black reception desk, all tastefully set in a spacious tiled area.

**8** **CAT'S PLAY** — This Persian cat, picked up as a stray and brought to the Veterinary Hospital for Special Services, is put at ease in the examining room by Nurse Kathy Bartels.

**9** **ON THE WAY** — Kathy Bartels carries the Persian patient back to her cage past Robert Goldstein, D.V.M., who is examining animal radiographs.

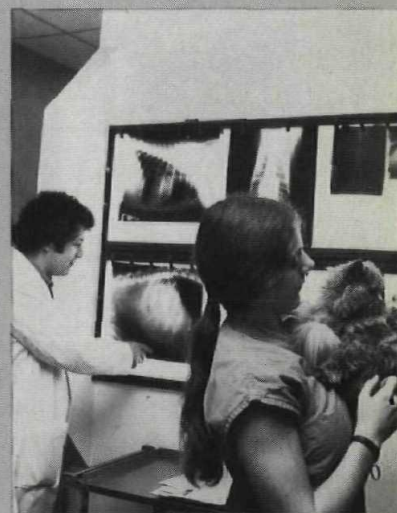
## CARING N.Y. SUBURBAN AREA FOUNDS SPECIAL SERVICES ANIMAL HOSPITAL



7



8



9



Cecelia Rugglers, of Ridgefield, Conn. Its lay members — all inveterate animal lovers — represent persons with contacts, money and expertise in such fields as banking, law and accounting. Such expertise is invaluable in providing support for the hospital. Four money-raising mail drives were made during 1978 and the Foundation is planning to expand its efforts in this direction with varied programs, not only to raise funds but to communicate to Westchesterites the unusual services that the hospital can provide.

Because of the Foundation, VHSS accepts without question any injured animal, whether wild or domestic. It subsidizes the treatment of all wild animals and for domestic animal patients when the client is unable to pay. This is not a low-cost clinic, however, Dr. Broadhurst emphasized, "even though we will take care of anything in the county, we are providing expert medical service" and those who do not pay must meet certain qualifications.

Many parts of Westchester are wooded and wild and so the untamed animals and birds brought to the hospital are varied and many. They include raccoons, opossums, fawns, ferrets, skunks, Canada geese, ducks, hawks and robins. To show how extensive such service is, the hospital recently billed the Foundation \$9,000 for treatment and sheltering of wild animals.

The Foundation also supports a low cost spay-neuter program and a limited adoption service for cats and dogs that have been abandoned or injured and unclaimed. It is planning to establish a "halfway home" project where volunteers will take an unclaimed pet while it is recuperating from trauma or illness until a permanent home can be found.

Eventually the Foundation would like to take over ownership of the hospital but that event is still in the uncertain future.

"The hospital survived," Mrs. Ruggles recently told a local newspaper reporter, "because people believed in the place and the quality of care it could provide the animals. The new team is well known and well-credentialed, and that kind of expertise is terribly valuable in an area where people care about animals."

Although just coming out of the financial woods, everyone in the Foundation and on the hard-driving hospital staff is determined that the ambitious experiment will work. "As far as we can tell," Mrs. Ruggles said, "the hospital seems to be a going thing." Area veterinarians are now supportive and the community itself is excited and sold on the unique services made available by this bold venture. In effect it is a community project and owned by the community itself.

**10** **TIME FOR PLAY** — Zooney, a springer spaniel, relaxes with Nurse Kathy Bartels in an examining room at the Veterinary Hospital for Special Services.

**11** **REST TIME** — Nurse Kathy Bartels is returning Zooney to his cage and attracts the attention of Robert Goldstein, D.V.M., who is busy at the viewbox reading animal radiographs.

**12** **ADMITTING** — Receptionist Lorriane M. Capozelli checks in "Kessler," a mixed Siberian husky and German shepherd puppy who has been brought to the Veterinary Hospital for Special Services by a concerned client.

**13** **CHECK-IN** — A client checks in a kitten patient with Receptionist Lorraine M. Capozelli in the lobby at the Veterinary Hospital for Special Services.



10



12



11



13



13



# for young people

## CAT QUIZ

Submitted by Eleanor C. Wood

1. Is the word "cat" mentioned in the Bible?
2. What was the name of Doctor Samuel Johnson's cat?
3. What did the pussy cat do when on a visit to the Queen?
4. What cat earned a fortune, position, and a mate for his master?
5. In the nursery rhyme, "Ding, dong, bell, Pussy's in the well," who put her in?
6. In what Shakesperian play is the statement that "Care killed a cat"?
7. Which of these cats has a curtailed tail?  
(a) Siamese (b) Tortoise (3) Manx
8. Catgut is usually made from what?
9. What cat always wore a pleased expression?
10. Who was the author of the famous story, "The Cat That Walked by Himself"?
11. In what ballet is introduced a short dance between two cats?
12. What is the last line of the nursery rhyme  
"I love little pussy,  
Her coat is so warm;  
And if I don't hurt her,
13. Has a cat the same number of toes on its front feet as it has on its hind feet?

## Charlie Angel

By Elizabeth Raymond

I found you  
curled up cold  
in the snow,  
white on white  
paws tucked under  
warmed by body heat.  
Your eyes, a topaz glow  
raised, met mine.  
It was love at first sight.  
I called you Charlie Angel.  
I didn't know  
you were a devil  
on four feet.  
My house is yours.  
Your ways are mine.  
You even possessed my favorite chair  
but, I don't care.  
When I put the house to sleep,  
My feet are warmed  
against silk fur.

We all long to identify with others . . . to find things to share . . . to have friends. A new film produced by the Ralston Purina Company explores this idea in an unusual way.

"About Cats," a 13-minute color film, was designed to dispel some of the common myths surrounding cats which have kept people from seeing them as friendly animals. However, in doing so, it also teaches children an important lesson in what it really means to be a friend.

This theme runs throughout "About Cats" and is summed up in a song which reminds children that the best way to have a friend is to be a friend yourself. In keeping with this idea, information is given on how to care for one's cat so it will be healthy and happy.

Tammy Grimes narrates the film as a whimsical mime guides children through the fascinating world of cats.

Intimate close-ups and slow-motion photography capture some of the animal's most endearing qualities while the use of poetry in one sequence catches the rhythm of a cat's varied life.

Some little-known facts about cats are revealed as the film explores feline history and legend. For instance, children will learn why ancient Egyptians found cats so mysterious and why cats always manage to land feet first.

The film, which recently received a gold medal at the Greater Miami Film Festival, was released last July and ran in selected theatres with Walt Disney's "Cat From Outer Space."

"About Cats" is now being made available to schools and community groups on a free loan basis and comes with a collateral package. The kit includes a teacher's guide, posters showing the do's and don'ts of respon-

sible cat ownership and student activity projects.

To obtain more information about the film and the free collateral package, write to Modern Talking Picture Service, 2323 New Hyde Park Road, New Hyde Park, New York 10042.

**Jack L. Kroek**  
**Ralston Purina Co.**

## ANSWERS:

1. No
2. Mistress Hodge
3. Frightened a little mouse under a chair
4. Dick Whittington's
5. Tommy Green
6. **Much Ado About Nothing**
7. Manx
8. The intestines of sheep
9. The Cheshire Cat in **Alice in Wonderland**
10. Rudyard Kipling: **Just So Stories**
11. Tchaikovsky's ballet, **The Sleeping Beauty**
12. "She'll do me no harm"
13. No. A cat has five toes on its front feet, four on its hind feet



# Hungry Dog

By Grover Brinkman  
Writer-Photographer

What is the dog doing in this photo sequence?

He's checking the radiators of cars for insects, grasshoppers and other beetle-type winged denizens that are prolific this year in the deserts of the Southwest. The dog is hungry, and the insects, and perhaps the skeleton of a small bird or two, are food for the taking.

Instinctively this Indian-owned dog knows that the tourists that park here daily come in from the desert, and their radiators offer food — of a sort. So the dog makes his rounds, checking each radiator and undercarriage.

The scene is one of the oldest Pueblo Indian villages in North



America, the Pueblo De Taos, where two terraced communal dwellings five stories high, flat-topped adobe houses, barred windows and narrow streets tell of a culture hundreds of years old. This is the highest pueblo building in the Southwest, and approximately 1400 Indians still live here.

Indians love dogs, and each family has one or more. But sometimes food is scarce, and the dogs must forage for




themselves. This one has found an easy way to appease his hunger.

—Grover Brinkman.

(Photographed at Pueblo De Taos, near the town of Taos, New Mexico)

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# DOGS IN A NEW ROLE

Published by  
the Gaines Dog Research Center

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The area of training dogs to help disabled people has become badly neglected, but now a dedicated group of people in Tucson, Arizona, is doing something to make up for this neglect. Sometimes referred to as "Handi-Persons," the group, entirely voluntary at this time, has organized under the name of Handi-Dogs, Inc., and provides dog obedience training for the deaf and disabled, and for senior citizens. It is the first organization of its kind in the country.

As in any obedience class, the owners themselves are taught to train their dogs; the dogs are not taught by professional trainers and then turned over to their owners, as has been the case in such training in the past. "We feel that dogs work best for the people who train them and we encourage our owners to do as much of the training as possible," says Alamo Reaves, founder and director of the program, and Michalyn Erickson, training director.

In addition to standard beginning exercises such as "heel," "sit," "stay," "come," "down" and "stand," the Handi-Dogs instructors also teach innovative exercises — picking up dropped objects, carrying things, barking on command, fetching a newspaper, and so on — that make the dogs useful to their disabled owners. American Kennel Club obedience competition guidelines are followed so that Handi-Dogs graduates can compete in the sport of dog obedience if they so desire; a sport in which, conceivably, many disabled people can

participate especially since the AKC has changed its rules to accommodate the disabled.

To the casual onlooker, the extension of regular obedience work may not seem startling. But doing this training in a class situation is something else again. The disabled and senior citizens do not have the stamina, in most cases, to maintain the pace of a regular obedience class. Reactions may be slower; arms and hands of the disabled too weak to make effective corrections. Equipment — wheelchairs, crutches, walkers — often must have special adaptations for owners and dogs to do the training exercises. Participants must have volunteers to assist at every class and the students' dogs are sometimes of not really suitable size or temperament for the work.

It's a challenging proposition and progress is slow, both for the individual student and for the organization. But progress there is and has been since the first class in the spring of 1974. From a beginning, which started with nine students and a handful of volunteers, there now are over sixty Tucsonans who are enjoying the companionship of well-behaved pets, many that are practical helps as well; and in the doing the students have realized enormous psychological boosts from their accomplishments.

Alamo Reaves has had rheumatoid arthritis since she was a teenager. She is a writer, presently an editor with the University of Arizona, and a lifetime dog lover. She





In the photo on page 28, Alamo Reaves, director of Handi-Dogs, starts her Shetland Sheepdog, Mog (Wil-Wal's Easter Surprise) on directed retrieve to fetch her shoe. Left and below: Mog zeros in on the shoe and gives it to his owner.



raises Cocker Spaniels and currently owns four, in various stages of training. There also is a Shetland Sheepdog, her personal Handi-Dog and one of the organization's demonstration dogs. "I'd thought for a long time that dogs could be utilized for the disabled, much as they are used for the blind," Alamo says, "but the idea took hold when my physical therapist, Betty Wickersham, told me about another patient who had taught her dog to fetch things and pick up objects for her. At that time I had a pet column in a local newspaper and knew a lot of dog people. So, I informally canvassed the obedience trainers about such an undertaking. Natalie Carlton was the first to become interested, so she, Betty Wickersham and I put our heads together. We knew the need existed — Tucson has the largest disabled population per capita in the country and a very large senior citizen group. I'd many times met disabled or senior citizens who would say wistfully 'I'd like to have a dog but have no way to train it.' Many of these people live alone and would really benefit from the companionship and protection of a dog.

"Years ago, I had gone through a regular obedience course on crutches and found it extremely difficult. Because of my limited motion and physical strength, it was very hard to keep up with the class and correct the dog. We wanted Handi-Dogs to offer courses that would give these special groups the experience of regular obedience work — that they could cope with — and

train their dogs to be useful to them, as well.

"We decided to go ahead, being well aware that it would take a great deal more time and much more thinking about that a regular obedience course. We contacted the local media and were given a feature in a newspaper Sunday edition. The next thing we knew, a daytime TV talk show wanted a live demonstration. This was great except none of us had a really suitable dog. So, we gave one of my Cockers a two-week crash course. On the day of the program, we took him to the studio an hour ahead of time so that he could become accustomed to the situation and have a run-through. He did every exercise to perfection but when the show started, his attitude changed — and don't ask me how he knew the cameras were on. He ran off the set, then decided to sit next to the interviewer, dropped the comb he was supposed to pick up, lay down on it and was a total disaster. Afterwards, we got irate telephone calls from dog owners asking what we thought we were doing; we obviously knew nothing about dog training.

"Because of this we were a little apprehensive about the first course, scheduled for the following week. But nine people turned up, including, to our astonishment, a deaf couple. They "signed"; none of us did. But we borrowed a book on the subject and had the good fortune to find a volunteer who was adept at sign language. The deaf couple's dog graduated at the head of the class."



# DOGS IN A NEW ROLE



*Stewart Nordensson works with his Miniature Pinscher, Barbie, with the assistance of former training director Beverley Ludwig.*

Knowing that the endeavor would be largely a matter of trial and error, Handi-Dogs has proceeded slowly. No expansion has been considered until the local program was well established and most training techniques had been perfected. Every year since 1974, the group has offered a course for the disabled and senior citizens. In 1977, a second course also was offered, this one for the deaf and hard-of-hearing; with emphasis placed on training their dogs to respond to bells and other sounds in the environment. An intermediate course for both groups is being considered for those interested in perfecting the Handi-Dogs exercises. And obedience training groups from other areas are being invited to observe the current course with the idea of their offering Handi-Dogs courses next year. It is planned that Handi-Dogs classes eventually will be offered in many localities through interested obedience clubs and, hopefully, that certified canine graduates of this program will be recognized legally as necessary aids to the disabled, as are guide dogs for the blind. Then, Handi-Dogs, too, can be taken on public transportation and in other public areas.

Every course has taught the Handi-Dogs staff a little more, allowing them to refine their approach and methods, and thus proceed with more confidence into the next session. During the first course, for example, it quickly became apparent that each owner-dog combination is an individual situation needing special attention in teaching. For this reason, classes are kept small, no more than 10 to 12 students for the 12-week session. The fee was \$15 then, as it is now. It also became apparent that each student had to have a physically able volunteer to help. Community response to the program has been excellent and Handi-Dogs now has over 25 volunteers, all reliable and willing to receive their own stint of orientation and training as part of the overall program.

Its accomplishments notwithstanding, Handi-Dogs has problems: what new organization operating on minimal funds does not? These start, perhaps, with transportation for non-driving students from home to class and back, since dogs are not allowed on public transportation in Tucson nor in vehicles provided for wheelchairs and to find a suitable location for classes in the city's Randolph Park. The Parks and Recreation Department recently agreed to put benches and rest facilities in an asphalt-topped (necessary for wheelchairs) shady area but Handi-Dogs must provide the materials. Major problems arise from a chronic lack of funds, for such relatively

small expenses as office help to very large expenses: insurance, this year donated by the Dog Obedience Clinic, a Tucson obedience club; incorporation last year as a tax-exempt organization; and obtaining non-profit status from the IRS; this, currently pending.

Other "problems" sometimes are the canine participants. So far, most students have brought their own dogs to class. "I wish we could counsel people before acquiring a dog, if they want to participate in Handi-Dogs training," Alamo says. "We have a standing offer from the Tucson Humane Society to donate healthy young dogs of suitable size and temperament to people with limited incomes. We firmly believe all physically and mentally healthy dogs are capable of learning. But some are less suitable for this work than others.

"At our first course a young woman arrived, on crutches with severe rheumatoid arthritis. She brought with her an enormous German Shepherd and three relatives trying to keep the dog under control. He bit Natalie Carlton twice during the first class and was very hard to handle, but his owner loved her dog and wanted to keep him. She worked hard — and so did we. Eventually, he turned into an exemplary Handi-Dog. He even turns on light switches for his owner! But, how much simpler life would have been for everyone if we could have helped her select a more suitable dog that would have been easier to train from the beginning.

"Or, take the older woman who comes to class with her Maltese. She may not be able to bend down and take something from the dog and even if she is physically able, how heavy an object can a Maltese-sized dog carry? But you cannot tell an 80-year-old woman to replace a dog she has owned and loved for several years because another dog would be more suitable for training. So, we try to cope as best we can with what turns up, and to meet the needs of the various owners as these arise."

Handi-Dogs has had three training directors: Natalie Carlton, now on the 22-member Board of Directors; Beverly Ludwig, now acting as consultant; and current training director, Michalyn Erickson. All three had considerable experience with dogs before joining Handi-Dogs and are considered "absolutely superb" by the organization's other members. The compliment is all the more meaningful because Handi-Dogs training is not for every obedience instructor.

The work is slow and requires endless patience. One



class, for instance, had a 13-year-old boy so debilitated by muscular dystrophy that he had motion only in his wrists. He was determined to do as much as possible with his dog, however; self-esteem and accomplishment are as important a part of the program as dog training, if not more so. Time and again the training director's function was to stand by quietly while the boy's mother pushed his wheelchair and he slowly manipulated leash and dog.

Finding people with the right combination of training skills and the personality to work with Handi-Dogs participants is not easy, but this boy proves what can be accomplished by a willing student, responsive dog and gentle, patient instructor. At recent obedience club fun matches in the area, he and his dog frequently have been in the ribbons in regular classes and against physically able competitors. "And because they deserve it," Alamo says, "not because the judges had sympathetic impulses." She adds, "The emotional boost for this little boy has been quite fantastic and one of the rewards all of us receive for our participation."

The psychological and social implications of the program were not anticipated by the Handi-Dogs founders. But in case after case, disabled students have found a new measure of self-respect in their accomplishments. And, many senior citizens, not interested in seniors' club activities, find that communication through owning and loving dogs brings an unsuspected involvement, a reaching out to others.

Handi-Dogs' newest project and perhaps its most demanding is classes for the deaf. Although this had been contemplated for the future, requests of several deaf and hard-of-hearing Tucsonans, whose interest had been aroused by the Hearing Dog program sponsored by the American Humane Association, brought it to the present. Before the first course, a number of the Handi-Dogs volunteers spent several weeks studying sign language in a course provided free of charge by the Community Outreach for the Deaf, emphasizing the special words and phrases that would be needed.

Working with the deaf has proved to be an enormous challenge to this basically dog-training oriented group. To begin with, the deaf cannot be informed of the program through many usual means of communication, i.e., radio and television. It was discovered that many of the deaf have minimal reading ability so aids and class material must be revised, with emphasis on the visual. And since so much of dog training depends on voice — commands and praise — the vocal impairment of some deaf individuals necessitates an entirely new approach to this type of training.

Each accomplishment by a Handi-Dogs student is a signal achievement. But last spring it befell a little brown Poodle named Gunga Din to dramatically confirm the merits of the program. Gunga Din is a Handi-Dogs graduate. His mistress, Mrs. W.C. Finn, is partially paralyzed from a stroke and lives alone. One evening, she fell in her bedroom and lay unconscious on the floor exposed to a cold draft from an open patio door. Gunga Din's training included barking as a signal for help and bark he did, for an hour until the neighbors were roused to investigate. The attending physician said, without doubt, the dog saved his mistress's life.

dogs, and pigs tend to consume highly palatable foods to the point of obesity, as in humans, and in these individuals the diet must be regulated closely.

In young animals, if insufficient food is available during the early stages of growth, growth will be retarded. However, if adequate food is then offered, the animal will compensate in its food intake by eating more and accelerating its growth rate until it catches up to where it would have been. In cases of extreme retardation, the catching up may not be complete.

### DRINKING METHODS VARY

Domestic animals show definite patterns of drinking behavior which are highly consistent within species. Dogs drink faithfully at meal times, and cattle drink almost exclusively during the day in the morning, early afternoon and late afternoon, but rarely at night or at dawn, even when grazing at night. A study of Hereford cattle in the Imperial Valley of California found the individual water consumption of adult dairy cattle was sixteen gallons. Horses drink very infrequently, and many horses may drink only once a day, but when they do drink they often consume large quantities of water. Horses drink by the gallon, not by the glass, and this should be kept in mind when watering your horse; a small pail of water is not enough.

Cats and dogs drink using their tongues as ladles. Surprisingly, dogs form a ladle with their tongues by curling them upwards, while cats form a ladle by curling their tongues downwards, or underneath. Cattle and horses submerge their muzzles in water but keep their nostrils above the water and draw water into the mouth by suction. For birds, such as the chicken and parakeet, the method of drinking is to bend the neck down and submerge the beak in water and then hold the head up high and allow the water to flow into the throat to be swallowed. Birds repeat the process several times while drinking. Only a few birds, such as the dove, can drink like cattle and horses by sucking water continuously while the beak is submerged.

Sheep are somewhat peculiar in that they often develop specific paths to water sources and follow a recognized route rather than a direct route across the pasture, regardless of the time involved. The paths are generally narrow, often only a foot wide, and have sharply defined margins.

Animals deprived of drinking water tend to conserve their own body water by having more concentrated urine and drier stools. In a one and a half year study with sheep unable to obtain drinking water, it was found that the sheep adapted their feeding behavior by grazing more in the early morning and late evening, rather than during the day. This allowed them to eat the plants when they were high in water content, and they also licked dew from the plants and fences to obtain additional water.

Feeding and drinking behavior in domestic animals continues to be studied around the world since so little is known about this basic process.



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# Responsible dog owners make good neighbors

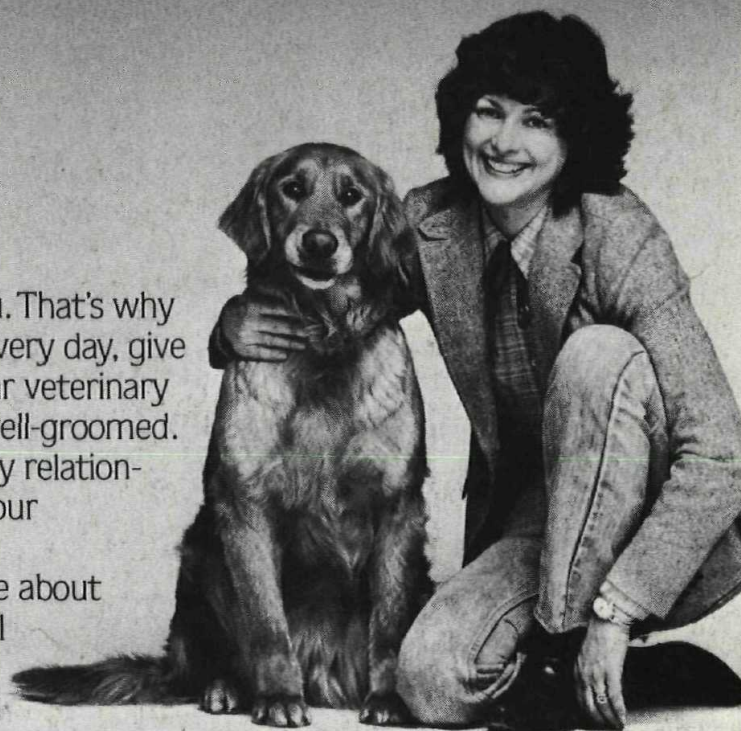
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The makers of Gaines® dog foods care about your dog's total well-being, both physical and social. That's why we feel it's important that dog owners understand the benefits and pleasures that come with responsible pet ownership.

It doesn't take a lot of money and years of training to have a well-behaved dog. Just a little of your time each day. Plus a lot of love and patience. There's even a booklet that can help. It's called "What Every Good Dog Should Know." You can get a free copy of this booklet, plus a list of dog obedience training sources in your state and a list of books on dog training. Just write a letter to us at Gaines or complete and mail this certificate.

Using any of the Gaines complete and balanced dog foods according to feeding instructions will provide your dog with the proper nourishment he needs. Sending for our training information will help your dog become a better community "citizen" and even more of a joy to own.



**Gaines Dog Training  
Information**  
P.O. Box 1007, Dept. FA  
Kankakee, Illinois 60901

Please send me the free dog training  
information described in this ad.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Allow 4 to 8 weeks for delivery.