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Today's Animal Health

Volume 11/Number 1 January/February 1980

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

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

FEATURES

DEPARTMENTS

dialogue

I love all animals and your magazine has helped me a great deal in understanding animals. I have one special pet in my life and she has inspired my deep love for other animals. She means a great deal to me and I have written a poem to try and express myself. I would really appreciate it if you would print my poem in your magazine.

Suzie

At first she was a thing to fear,
and whenever she came near,
I cowered in a corner like a naughty kitten.
But now she is older, already in her tenth year,
And I have no fear,
Only love and pride,
For I know she will stay at my side.
She is like a curious child.
Unable to keep her nose out of anything,
For when we are gone, trash cans have a strange way of spilling their contents,
But when we come home she will be in her bed with the same innocent look.

She has the cutest little face,
One that on one can resist,
And if she is ever gone,
She will for sure be missed.

She is the greatest,
Unable to do any wrong in my eyes,
Unable to tell any lies.
She listens to my problems and will never interrupt,
For she is the greatest, she is Suzie, my dog.

Thank you for such a wonderful magazine and for reading the poem and considering it.

Frances Wood
Houston, Texas 77070

We were moving to where we are living now in Florida four years ago.

I have a Toy Poodle Bitch now twelve years old that we had to move down with us.

She does not like to ride in cars, so my father drove down and my mother and I had to take the plane with Pampa.

I had to put her in a kind of box to carry her on board (it was Eastern Air Lines). She was sedated but she still had been able to chew her way out of the cardboard box.

Since the plane was not that full, she sat with us. Since she was sedated, she behaved very well.

The place we were moving into wasn't quite ready so we had to stay at a Holiday Inn for about a week and she was also very good there.

Of course, I heard Poodles travel and move to new places quite easily, easier than most other breeds, at least that's what I have heard.

To make a long story short, she is doing fine and enjoying the sun.

Miss M. A. Muchnick
Coconut Creek, Florida 33066

I met Mr. Harry Maiden at the Pomona Fairgrounds while attending the Horse Show Benefit for the Animal Health Foundation.

He gave me 3 copies of your magazine to read. Your articles were very interesting and I found a lot of good information in them. However, in your issue for the months of March & April 1979, I found an article on the Desert Tortoise on page 18.

In this article, I read a bit of information with which I definitely disagree, in regard to the plastern of the male and female tortoise.

Since 1960, I have owned many of these tortoises and have studied their habits and way of breeding and raised the babies.

The **male** has a very definite concave indentation in his plastern (ain't no flat one in my herd). The reason for this is so the female will fit more securely under him during mating as the sex organs are in the tails.

The female digs a hole and buries her eggs in there 2 at a time, when finished she turns around and around on the top of the hole packing the soil down with **her flat** plastern, when finished you cannot tell where she laid the eggs unless you watch her at work.

Dollie W. Siders
Pomona, California

Thanks for your letter. Of course you are absolutely right. Don't know how the typographical error got by our proof reader but it did and we appreciate your bringing it to our attention.

-ed.

I wanted to pass this poem along to you to share with your readers. I received this from one of my clients (or patients)!

I thought it was a very special thought.

Don F. Houston, D.V.M.
Dallas, Texas 75233

Received from "Dolly Dawg" Davis

You fill me with pills for allergy and heart worm
Vitamins for my doggie hair
You stick me with needles, examine my bones
And insert a thermometer, (well, you know where!)
You embarrassed me in front of my family
When you said I was overweight --and yet--
I appreciate all that you do for me
And I'm grateful that you are my VET!

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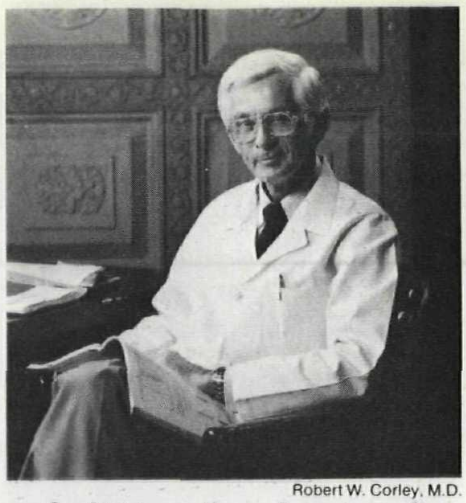

Robert W. Corley, M.D.

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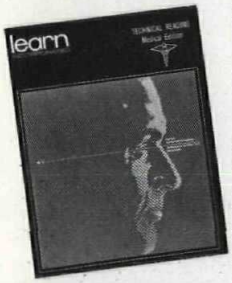

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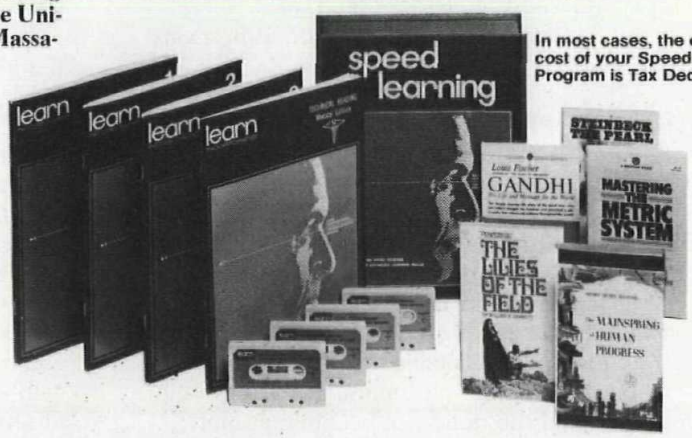

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WHY DOGS DO WHAT THEY DO?

by Ian Dunbar, Ph.D., M.R.C.V.S.

According to a recent survey by the American Veterinary Medical Association, the dog is the most popular pet today in the United States. The more animal owners understand animal behavior the better equipped they will be to care for their animals. To aid people in the understanding of dogs Dr. Ian Dunbar will be doing a series on canine behavior.

Dr. Ian Dunbar was born in Hertfordshire, England and attended the University of London, where he read for degrees in physiology and veterinary science at the Royal Veterinary College. He subsequently obtained a doctorate in animal behavior from the University of California, Berkeley and for the last seven years he has been conducting research on dog behavior. Dr. Dunbar's research specialities include, social behavior and the development of hierachies in dogs, olfactory communication and sexual behavior. Dr. Dunbar has recently completed a book, published by TFH Publications, Inc., entitled DOG BEHAVIOR: Why Dogs Do What They Do.

HOW ABOUT A PUPPY?

Owning a dog is a rewarding experience but, nonetheless, it represents a substantial responsibility. Some people do not have the time, space or money to care adequately for a dog. These factors should be considered carefully **before** rushing out to buy an irresistible cuddly puppy. More often than not, when dog owners find their pet unsuitable, it is the owners themselves who are to blame, and many of them should have never entertained the notion of becoming a pet owner in the first place. Think before you buy, know what you want and know what you are getting.

A time commitment to the pet is important. Some breeds need more attention than others; for instance, a long haired dog will routinely require more time for grooming than a short haired one. Some dogs are fairly independent, whereas others require regular love and attention from their owners. People differ in their estimation of what is humane for pets, but I am sure that most will agree that it would be unfair to keep a dog locked up on his own all day long. No wonder some dogs develop bad habits and annoying idiosyncrasies. They are just plain bored.

Adequate space for a pet is another consideration. Do you have a home with a large fenced yard or a one-room apartment? It is unlikely that larger, more active dogs will receive adequate exercise around the household, so they will need to be walked several miles a day.

Also, the cost involved in pet ownership should be considered. Generally, the larger the dog the greater the expense. In addition, there may be substantial expenses for boarding, and the owner should be aware of the possibility of unexpected veterinary fees.

How to Choose the Right Puppy

Once the decision has been made to take on the responsibility of a dog, the next question is: what type of dog? A purebred or a mongrel? If the former, which breed? If you want a purebred, it is generally best to consult an individual breeder. However, if the proper lineage is not the main concern, the local SPCA or Humane Society is a good place to search.

Once the selection has been narrowed down, picking the individual puppy is the next step. Even in the first week of life it is apparent that within the same litter, pups develop quite distinct temperaments, and by the time they are six to seven weeks old each pup has a unique personality. It is important to pick a puppy with a personality that is complementary to your own particular lifestyle. For instance, a gregarious puppy will be suitable in a large active household, whereas a more timid puppy might be ideal for a single person living alone.

It is advisable to handle the puppy before making a commitment. You can tell so much more from playing with a dog for only a few minutes, than from simply observing him through a shop window. The majority of pet adoption centers have facilities which enable prospective pet owners to spend some time with the animal that they are interested in adopting.

Now the Puppy is Home

Once a puppy has been chosen, and he is safely settled in his new surroundings, how to proceed? Training should begin on the very first day that the pup comes home. By this I do not mean formalized training sessions for at this age the pup will have a very short attention span. But it is important to start thinking how you want the dog to behave as an adult, and then proceed to treat the pup accordingly. For instance, it may be extremely cute for a two month old St. Bernard puppy to run upstairs and jump on the bed, but this

kind of greeting may not be quite so amusing when the dog is an adult and weighs over 150 pounds. It would be unfair to encourage such behavior from a puppy, and then suddenly begin to punish the same behavior from the dog as an adult. The animal will become confused (and maybe neurotic) due to the inconsistencies in the owner's behavior. If you do not want the dog upstairs as an adult, then do not allow him upstairs as a puppy. A young puppy has a good sense of time and place and will learn the rules of the house very easily, provided the owner is willing to teach him.

Similarly, if the dog is to ride in the car as an adult, familiarize the puppy with that activity. If you want to be able to handle the adult dog, then regularly handle the puppy. (This will also please your veterinarian). And if you want the dog to accept the mail carrier and meter reader as friends rather than possible bite victims, then introduce them to the puppy; etc., etc.

This notion of *early experience* is especially important when it comes to the dog's socialization with other dogs and humans. To prevent the dog from becoming shy of human strangers, the puppy should have the opportunity to meet a variety of humans. Similarly, if the adult dog is expected to get along with other dogs, introduce him to a variety of dogs while he is growing up. However, until your dog has received his *full* course of puppy shots, only introduce him to dogs that you know have impeccable vaccination records. Otherwise the pup may succumb to one of the serious canine diseases.

The role of each dog is unique, depending on the particular lifestyle of his owner. The dog will try to adapt to almost any domestic situation in an attempt to establish a mutually enjoyable and harmonious relationship with his owner. However, dog owners must fulfill their part of the bargain. . . to chose a suitable dog and then proceed to train him properly. Training involves a small amount of time and patience, but a large amount of common sense. It is much easier to try to keep the puppy from developing bad habits, than to try to change them afterwards.

The Pup is Parent of the Dog

One of the most important qualities in a pet dog is his temperament. A dog with a good temperament is a joy to own. An antisocial or fearful dog can be a continual nightmare.

A dog's temperament is largely the result of processes of *socialization* occurring during puppyhood, in many ways the most important time of a dog's life. As such, it is important for the dog owner to understand the significance of this crucial stage of development.

Puppy development is often divided into five fairly distinct stages. However, it should be remembered that the age when the puppy enters each period may vary considerably between different breeds and different individuals.

Period	Age of Onset
1. Neonatal	birth
2. Transition	eyes open (2 weeks)
3. Socialization	ears open (3 weeks)
4. Adolescence	weaning (10 weeks)
5. Adulthood	puberty (6 months)

The neonatal, or newborn, pup is equipped to do little else but suckle and sleep. During the transition period, the pup begins to move about and first becomes aware of his senses so that by the end of the third week, the littermates begin to establish important social relationships, which are the harbingers of social communication and organization of adult dogs. The bitch gradually becomes less important to the pups, and the period of socialization arbitrarily terminates when weaning is completed. The juvenile period extends until puberty, whereupon the dog attains sexual maturity and embarks upon his adult life.

Significance to the Dog Owner

Some researchers have termed the socialization stage the *critical period*, because they believe it is so important for the dog's behavioral development. The eyes and ears open at the beginning of the critical period, and the pup is literally bombarded with a host of new and intriguing stimuli and experiences, which exert a maximal effect on shaping the dog's future personality.

If, as an adult, the dog will be expected to socialize amiably with humans and other dogs, then during the impressionable critical period, it is essential that the puppy is exposed to a variety of dogs and humans. This might sound obvious, but all too often, the obvious is neglected.

Some puppies have been removed from their mother and littermates as early as three or four weeks and raised in quarters with little contact with other dogs. It is hardly surprising that often these dogs will be asocial, or perhaps even antisocial, towards members of their own species. They have had little opportunity to learn and practice the social protocol and pleasantries, that are essential for interaction in the canine world. In some cases they may even refuse to mate with other dogs.

If, however, the pups have been raised in a pet shop or commercial kennel and have been deprived of human contact during the critical period, they may not become adequately socialized towards humans. Instead, they may grow to be wary of people and as such, they will be difficult to train and most likely will make unsuitable pets and companions.

To achieve sufficient socialization with both dogs and humans, the optimal time to take the pup from the litter is between six and eight weeks of age. At this state the pup has received about four weeks of socialization with other dogs before introduction into the world of people. Nonetheless, it is important that the puppy should continue to have the opportunity to periodically meet and play with other dogs while he is growing up. Similarly, if the pup lives with a single owner, it would be advisable to introduce him to other humans at this early stage. And of course, it should go without saying, that human contact at this time should be kind and non-threatening.

The main point here is to try to get the dog started on the right foot. A dog that has not had the benefit of a good environment as a puppy need not necessarily be considered a lost cause. However, if a dog has not been adequately socialized towards humans, the amount of time and energy required for training will be considerable, and probably beyond the patience of most dog owners.

TOP DOGS

Photo of German Shepherd Compliments of Ralston Purina Co.

German Shepherd

German Shepherds were #1 in USA and #2 in Canada.

Americans love lists, and one of the lists that shows up in the news every year is the American Kennel Club's (AKC) list of the most popular breeds of dogs.

But this year there's a new list in the news -- one released by the American Animal Hospital Association (AAHA), which polled its spokesperson organization in the United States and Canada to determine what animals were most beloved by veterinarians themselves. Dogs proved to be the most popular pets followed by cats, according to Dr. Warren G. Walker of La Canada, a former president of the American Hospital Association.

Here's how the top breeds rated **among American veterinarians:**

1. German Shepherds
2. Poodles

Tied for 3rd place were Black Labradors and Golden Retrievers.

Among Canadian veterinarians, the top choices were:

1. Poodles
2. German Shepherds
3. Miniature Schnauzers

These choices seemed to conform with the most recent AKC figures, which in 1978* showed the most popular breeds to be: 1. Poodles, 2. Doberman Pinschers, 3. German Shepherds, 4. Cocker Spaniels, 5. Labrador Retrievers, 6. Beagles, 7. Golden Retrievers, 8. Dachshunds, 9. Miniature Schnauzers, 10. Irish Setters.

The American Animal Hospital Association poll showed some other interesting things about the men and women to whom we entrust the care of our four-footed friends. Animal lovers all, American veterinarians reported owning an average 1.5 dogs and 1.6 cats. (The favorite breed of cat, by the way, is the domestic short hair, followed by the Siamese.) In Canada, the ownership figures per veterinarian were 1.2 dogs and 0.8 cats.

With a parade of animals constantly passing through their lives, veterinarians seem to be more susceptible to beastly attachments than the rest of us. American veterinarians reported that at one time or another they had owned as many as 3.5 dogs and 2.8 cats. (In Canada, the figure was 2.3 cats and 1.8 dogs.) Other animals owned by veterinarians included fish, birds, horses, hamsters, rabbits and one llama!

The average age of the U.S. respondent was 48; had 6½ years of college and had been in practice for 23 years. All but two of the respondents were married — had been for 22 years — and had an average of three children. The figures in Canada were almost identical.

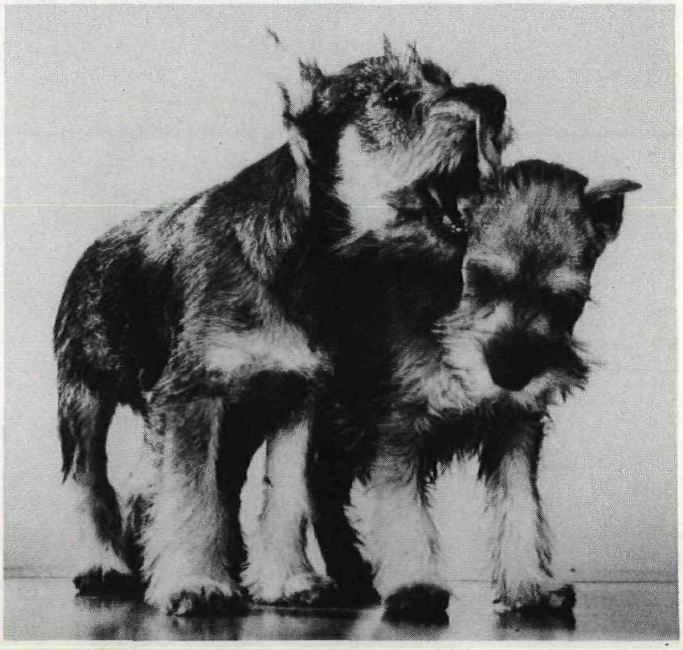
*1978 are the latest available figures. The 1979 figures were not available at Press time.

Poodle

Poodles took first place in Canada and were right behind German Shepherds in the United States.

Miniature Schnauzer

Miniature Schnauzers in third place with Canadian Veterinarians.



WHATS UP DOC?

Diagnosis: The Dog's Problem
Is The Doctor's Problem
by

Dr. Alan J. Parker, Ph.D., M.R.C.V.S.
Department of Veterinary Clinical Medicine
College of Veterinary Medicine
University of Illinois
Urbana, Illinois 61801

"She's got these lumps on her leg and one of them's bleeding. Can you tell me what they are? Can you cut them off? Are they dangerous? Can you save her?" It was my first morning alone in the practice since I had qualified for my veterinary license the previous week. Up to now all I had been faced with had been a few itchy ears, impacted anal glands and cat bite abscesses. I had been waiting impatiently for my golden opportunity to act the heroic knight, make a brilliant diagnosis and produce a miraculous cure. This dog seemed to be the chance I had been waiting for.

My euphoria was short lived. The case record showed that the 30 pound, long-haired shapeless mass on the table was older than I was — 23 years! The awns and burrs in her coat were not the cause of the line of lumps up the inside of the thigh and in her groin. Her temperature was normal and the lumps were not painful, so they were not abscesses. She had had several litters of puppies but had been spayed ten years before because of an infected uterus (womb). The record indicated that she had chronic kidney disease, a damaged heart, and drank gallons of water. This was no case to withstand extensive surgery. Further examination of the lumps showed that the bleeding one had ulcerated through the skin. The edges of the ulcer seemed eroded. There was no sign of a scab or healing. The lumps had been growing slowly over the last few months.

"The older the patient the more likely the lump is to be a tumor." "Do not kill the patient in making the diagnosis." "We all die sometime — it's your job to make the inevitable as humane as possible if you cannot effect a cure." Many bits of advice from my Professors floated through my mind. The question was — what was I supposed to do? I had to decide and I had to act. There was no turning around to a teacher or an older practitioner to ask for help. Because I had been labelled as a veterinarian, I was the fountain of knowledge as far as this elderly lady was concerned. Her faith in me was touching and helped to boost my sagging confidence.

I began, "We must find out what these lumps are by cutting out a small piece of one under local anesthesia and sending it to a pathologist. She can tell us exactly what the lump is and how dangerous it is. I really think that it is a tumor, cancer if you like, but I must be sure. Once I know what type of cells are in the lumps I can tell you more accurately how Susie will do. It will not take more than a few minutes to get the piece of tissue. I will also take a radiograph (X-ray) of her chest to make sure there are no more lumps in her chest." A short while later Susie and her owner went walking down the path from the clinic. Neither seemed unduly affected. The person who was worrying was me — I had the problem. How was I going to explain to the old lady that her companion for 23 years was not likely to survive many more months. At some point it was going to be necessary to euthanize Susie to save her from suffering.

The pathologist said the lumps were low grade (only slightly malignant and slow growing) squamous cell carcinomas (a tumor of skin cells). It was another nine months before Susie had to be put down. In the meantime, I had cut off a few of the larger ulcerated lumps under heavy sedation and local anesthesia. The old lady kept the remaining lumps clean and Susie plodded on doing what she had always done. Susie's owner seemed happy at the end that Susie had not

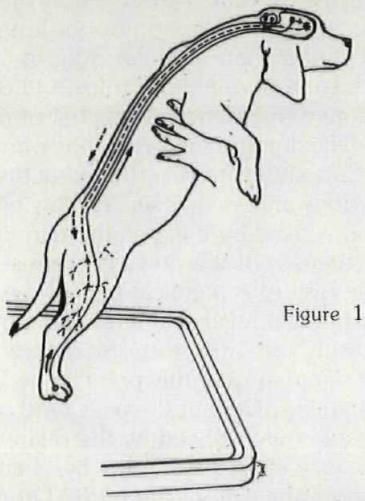


Figure 1

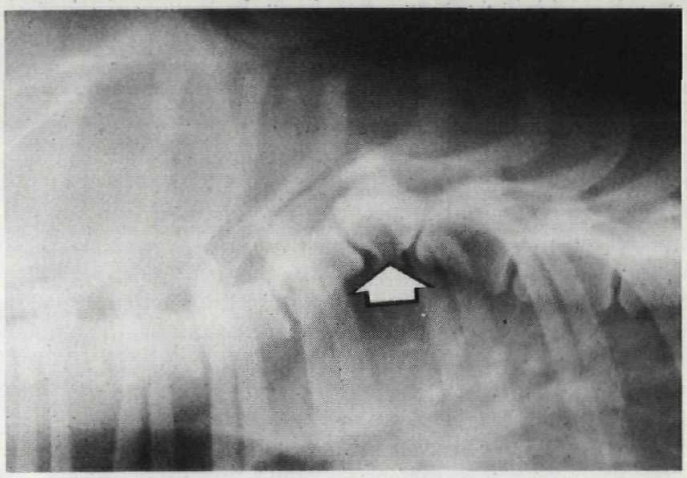


Figure 2

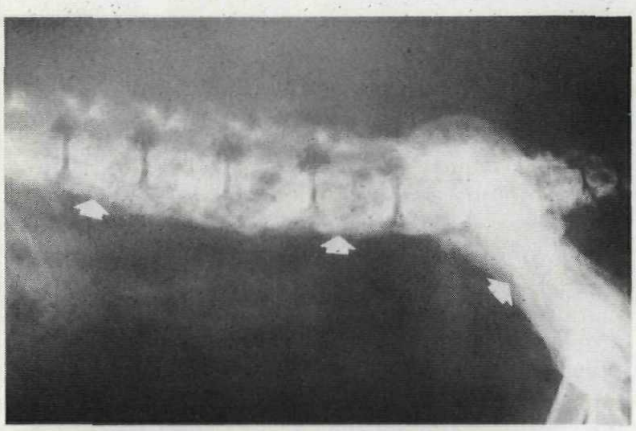


Figure 3

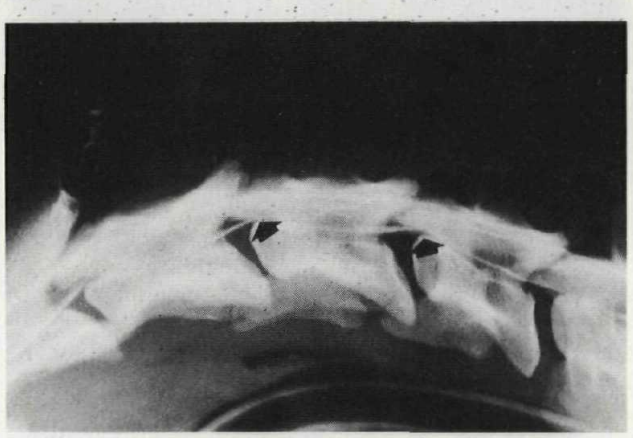


Figure 4

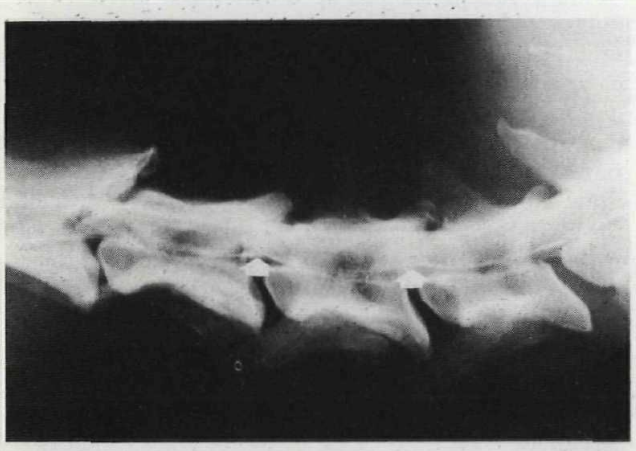


Figure 5

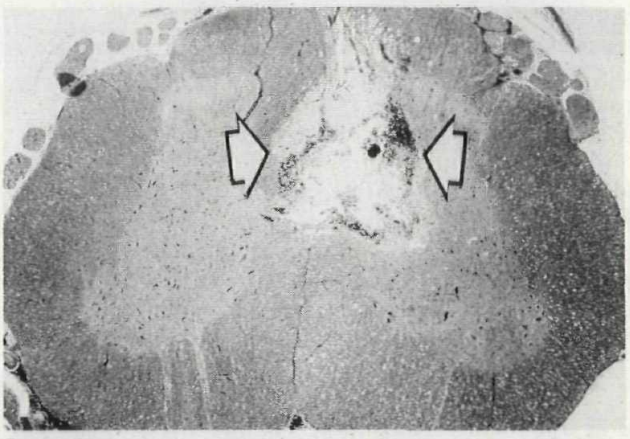


Figure 6

1 Simple diagrammatic representation of the nervous system's response to the dog feeling the table with its hind legs as it is lowered onto the table (see text for explanation).

2 Radiograph of the spine of a dog at the level of the chest to show an abnormally shaped (wedged) vertebra ("hemivertebra").

3 Radiograph of the lumbar (lower) spine, hips and upper part of the hind leg of a dog. The arrows point to massive extension of tumor (cancer) cells along the hips and spine from a tumor in the prostate.

4 Radiograph of the neck of a dog after a dense dye has been injected into the fluid spaces of the spinal cord (Myelogram) to outline the spinal cord. The neck is bent (flexed) forward to show slight pinching of the spinal cord (arrows).

5 Same dog as in Figure 4 but the neck has been pulled straight. The white arrows indicate slight pressure on the spinal cord.

6 A cross section of the spinal cord of a dog showing a necrotic cavity near the middle of the spinal cord (arrows).

WHATS UP DOC?

Continued from page 10

suffered unduly. The elderly lady had accepted life and death much better than I had.

This first difficult case of mine was my personal introduction to real problem-solving (diagnosis) and case management on my own. Since that time Veterinary Medicine has come to understand more of the science behind diagnosis. I think we now teach our students to handle themselves better and to problem-solve more logically. Case management is more complex and less scientific because it involves the owner's wishes to a greater degree. In this article I am going to concentrate mainly on the science of making a diagnosis— problem-solving in other words.

The simple story of Susie illustrates most of the aspects of making a diagnosis. There is an abnormality or presenting sign which is termed a *"problem"*. The problem might be a cough, a limp, a hair loss, increased thirst, vomition or a lump. The owner wants to know what the cause is (a diagnosis), what will happen to the dog (a prognosis) and what to do about it (a treatment). The Veterinarian has to use whatever information that can be gathered to decide which of several possible causes is the culprit in this case. The Veterinarian can then forecast, with varying degrees of accuracy depending on the cause, what treatment is best, whether the animal can survive the disease and how long recovery will take. The Veterinarian may have to go to great lengths to explain the disease process and how the treatment works. This is called *client education*. Monetary costs of the diagnosis and treatment are important factors but so are costs in terms of suffering. Clients also forget that Veterinarians need to update their knowledge continuously (continuing education). New treatments and diagnostic methods are not of much use unless practitioners learn about them. It is hard to think of a disease that we have not learned more about diagnosing or treating in the last 10 years. All these factors play a vital part in the science of making a diagnosis. It is indeed a science and a well understood science. It is not an art form. It involves many skills but each aspect can be learned logically.

It is important to understand how diagnosis works. To do this one has to recognize what is going on in one's mind as one makes a diagnosis. The process of diagnosis is basically the same whether it is a medical problem that is being solved, a mechanical problem with the car, or a checkbook that will not balance. The cause of the abnormal situation has to be identified and a solution found. Various sources of information are used to help identify the cause.

The Veterinarian's mind operates on three basic levels when making a clinical diagnosis to solve a medical problem. The *first level* is the gathering of information and the interpretation of the information. At this level the Veterinarian is examining the dog (a *physical exam*) reading the medical record and asking the owner questions (*the history*). The species, age, breed, and sex of the animal are very important. Certain breeds of dog or cat tend to develop certain diseases (e.g., the larger breeds of dog tend to get bone cancer). Some diseases are inherited and may even occur exclusively in one breed (e.g., Kerry Blue Terriers get a specific type of brain degeneration). A young dog is less likely to develop a cancer than an older dog. In an unspayed bitch an episode of vomition, thirst and depression may be caused by a pyometra (uterus full of pus). A male dog with difficulty urinating may have an enlarged prostate. Cats suffer from certain viral diseases that do not affect dogs and vice versa. All this obvious information is used by the Veterinarian in thinking of the most likely causes of the dog's problems.

The case history is a critical part of the information needed at the first level. Many presumptive diagnoses are made with a good history. Many are unfortunately missed by skipping over this point or because the owner forgot something. Certain diseases tend to suddenly cause signs that are noticed by the owner. For example, a stroke usually causes a sudden head tilt and a paralysis of the legs on one side of the body. Other diseases such as a brain tumor may cause the same signs to develop very slowly. A cyclical appearance of the signs (here one day, gone the next) characterizes some diseases of metabolism that involve the liver and adrenal glands. These same diseases may cause signs at times of undue stress, excitement or a few hours after a meal. The duration of the abnormal signs is significant because some diseases can only cause signs for a short period of time, while others can only show signs of long duration. A slow deterioration in the condition of a dog suggest that different disease processes are at work in a dog with a steady improvement since the onset of the problem. Previous diseases or injuries may be the cause of current problems. Adequate vaccinations reduce the chance that the infectious diseases they protect against are the cause of the problems. All this information has to be interpreted carefully because not only may the answers tend to indicate what disease process is more likely the cause, but the answers may also be misleading.

The detection of the presence or absence of other abnormalities not mentioned by the owner is an essential part of any history-taking. For example, Does the animal drink more or eat less than it used to? Has it ever had a convulsion or a personality problem? Does it cough at night or after exercise? Does it like to play or run less than it used to? What color and consistency are its stools? Can it see at night as well as it used to? These questions are designed to detect minor abnormalities, abnormalities the owner may have overlooked or abnormalities the owner attributed to "old age".

The life style of the dog has to be looked into as well. A dog that roams, fights or eats garbage is more susceptible to physical injury and digestive disease than a dog that only goes out on a leash. A dog that hunts is open to being shot accidentally or to diseases transmitted by wild animals. The emotional pressures that the dog may be under because of other dogs in the house or neighborhood (the forces of territory, sex, and dominance) may have to be looked for. Many disease processes and signs are directly or indirectly caused or affected by the animal's inability to adapt to stress. Similarly, the type of diet the dog is fed can affect the disease process and can even cause a problem if the diet is poor.

More specific questions may have to be asked depending on the disease suspected. For example, skin

allergies are often caused by dietary and inhaled allergens, as well as by allergens in contact with the skin. Therefore, questions exploring exposure to all these agents are used in problem skin cases.

The physical examination is often carried out at the same time as the history is taken. Every Veterinarian seems to do physical examinations differently; some will concentrate on one part of the body more than others. The only "wrong way" is to examine only the organ system that superficially seems to be causing the problem. For example, a dog with a "limp" could have a disease of his nerves in the leg, the spinal cord, or brain, as well as arthritis of the hip. Minor hip arthritis is common even in apparently normal older dogs and its mere presence is no proof that it is causing the limp. The nervous system has to be examined as well, to make sure the real problem is not there.

There are basically two schools of thought on physical examinations. The nose to tail advocates say that the examination should start at the nose and work slowly towards the tail. Personally, I prefer the other approach based more on the examination of each organ system in turn. Both methods are effective if carried out logically. Time spent on each part of the body will vary depending on the dog's problem and what the Veterinarian is looking for. My way of performing a physical is initially to watch the dog walk into the room to check the gait, then to look at the whole dog to assess obesity and obvious skin problems. I will then start with a superficial examination of the head so as to make friends with the end that bites before pushing a thermometer up the more sensitive end. The body temperature may vary widely depending on how excited a dog is. It is still an excellent guide to disease processes however. The respiration and pulse rates may vary similarly but are still useful values. The strength and character of the pulse can be measured at the same time.

The head can then be examined more closely. This involves checking the ears, mouth, gums, teeth, tonsils, and surface of the eyes. The interior of the eye can be examined later if necessary with an ophthalmoscope, once the dog is more used to the Veterinarian. As the head is examined the function of the nerves of the head can be quickly checked. This leads me to examine the entire nervous system (which happens to be my specialty, of course) and to check for atrophy or other changes in muscles. I then examine the entire skin more closely and feel the lymph nodes of the body ending with abdominal palpation. The testicles are then checked in male dogs and the vulva in bitches. The chest is my last port of call. It contains the heart and lungs. A stethoscope is necessary to hear what is going on. A few taps on the chest are insufficient.

It is amazing to many people just how fast a physical examination can be performed. It does not take half an hour. In fact, it can be performed in a normal dog in about the time it takes to read the last three paragraphs out aloud.

During the physical examination the Veterianarian is looking for "changes from normal." "Normal" is not a single entity. "Normal" is a variation about a point. Hence some experience in recognizing "normal variation" is essential. This is where the interpretation skill comes in. Once a deviation from normal variation has been detected its significance has to be understood. Is the cause or is it only indirectly related to the dog's problems? Perhaps it is yet another disease process in its early stages? Deviations from the "normal variation" might be color of the skin, hair loss, muscle atrophy, a strange noise or feeling in a joint as it is flexed, a smell from the ear, a discharge, a swelling under the skin, a mass in the abdomen and an unusual heart or lung sound. Changes in the function of the nervous system are detected by examining reflexes and thus how the different electrical circuits are working. Figure 1 is a simplified diagram of the circuitry being tested when the dog is lowered so that its hind paws touch the table. The touch receptors in the paws transmit a signal via the nerves of the legs and the spinal cord to various parts of the brain. The brain initiates and coordinates the movement response via electrical impulses it sends down the spinal cord and nerves of the hind legs to the muscles of the hind legs. Knowledge of basic anatomy and physiology is essential when the Veterinarian has to interpret the results of such a test.

By now the Veterinarian's mind is ready to move onto the *second level*. At this level the information obtained from the history, physical examination, age, breed and sex together with the interpretation is used to make up a list of the most probable causes of the dog's problem. This list of tentative diagnoses is called a *"differential diagnosis."* If the dog has more than one problem (e.g., blindness and hair loss) then a differential diagnosis is established for each problem. The likely causes are generally listed in order of probability with the most likely at the top. Of course, if the dog's problem is simple (e.g., itchy ears) then the list of differential diagnoses is rather short. The examination of the ears might have detected ear mites and the absence of foreign bodies such as grass seeds in the ear. Thus the differential diagnosis would just be ear mites and perhaps secondary bacterial infection in such a case.

Once a list of the most probable causes has been established, further tests are necessary to see which, if any of these causes is the culprit. Further tests might include an examination of the blood cells (both red and white), the urine (for abnormal particles or chemicals such as glucose in it), the stool sample (for gut parasites and for normal digestive processes) and blood chemicals (glucose, urea, sodium) or blood enzymes. Enzymes normally circulate in the blood in low levels after being released from organs such as the liver or pancreas. Damage to such organs causes excessive amounts of these enzymes to be released. Some of these analyses will be carried out in the Veterinarian's practice and some will be sent out to laboratories. It makes little difference, except in time, which method is used. Many other blood tests exist and may be necessary, e.g., circulating viruses, bacteria and parasite larvae can be detected, as can the body's response to them (antibodies). Abnormal chemicals such as poisons (lead) can be looked for. Even the body's hormones (cortisone, thyroid, insulin) can now be measured accurately with ease. There are many variations of possible combinations of blood tests that might be ordered. When the results are available more interpretation and skill is necessary to detect the deviations from the "normal variation" in the test results and to understand what each deviation means.

continued on next page

WHATS UP DOC?

There are many other types of tests that might be ordered. Perhaps the most common one is a radiograph ("X-ray"). Dogs do not lie still and move their limbs to order. Hence, even for simple x-rays it may be necessary to anesthetize the dog. Clients often fail to realize how difficult an apparently simple procedure in man can become in the dog. Radiographs (Figures 2-3) will show up tissue to varying degrees depending on how dense the tissue is. Hence bone shows up best. Other tissues such as the heart, bladder, kidney and liver can be made to stand out as well. Structures filled with air (gut loops, windpipe) or surrounded by air (lung arteries) will also stand out in contrast to their contents or surroundings. Special radiographic procedures are available in many practices. The simplest such special procedure is the use of a contrast agent given by mouth or injected into an organ to outline a structure not otherwise seen clearly. A common procedure is the barium gastrointestinal (G.I.) series in which barium sulphate is swallowed. This substance is very dense and outlines the gut. A less common procedure is to inject iodine compounds into the fluid spaces of the spinal cord. This is called a myelogram (Figures 3-4). It enables the spinal cord to be outlined. By manipulating the neck the abnormal compression of the spinal cord can be seen and understood (arrows - Figures 3 and 4).

Interpretation of the radiographs requires as much skill as correctly taking them does. In Figure 2 a strange wedge-shaped vertebra is seen in the back. This is abnormal but often exists in certain breeds of dogs (Bulldogs) without causing problems. In some breeds (Highland Terriers) it often causes problems such as wobbly (ataxic) hind leg gait. The Veterinarian's problem is the decide if the abnormality is "significant," i.e., is it causing the problem. In the case involved in Figure 2 a myelogram had to be performed to show that this abnormal vertebra was indeed squeezing the spinal cord. In Figure 3 the abnormal growths (bone densities) around the lower back and hips are obviously grossly abnormal and are the cause of the dog's pain and paralysis. This was a tumor of the prostate that had spread along the spine and hips.

Others types of diagnostic tests might be necessary. The heart electrical activity can be measured (electrocardiogram - EKG or ECG) to enable the detection and treatment of an irregularly beating heart or the effects on the heart of abnormal levels of potassium in the blood. The electrical activity of the brain (electroencephalogram - EEG) can also be recorded. This permits diagnosis of certain brain diseases. Samples for bacterial or fungal culture can be taken to identify the infection. Samples (biopsies) of body tissues can be taken with special tools and examined to see what abnormal cells they contain. Commonly biopsied tissues are the liver, lung, kidney, lymph nodes, gut and skin. The bodies normal and abnormal immune responses can be measured. A number of diseases (auto-immune diseases) are caused by the body's own immune system attacking different parts of the body such as the skin, muscles and kidney. We are constantly developing more diagnostic tests and refining our current ones. This list is by no means complete. There is as much skill in correctly selecting a diagnostic test as there is in performing and interpreting it.

The various diagnostic tests are used until the *diagnostic objective* has been reached. The objective is usually to identify which single disease is the cause. However, it may not be possible to get to this point; the Veterinarian may be unwilling to endanger the animal's life by further testing and delay, or the client may not be able to afford further tests or may not want the animal to suffer any more. Everybody involved may have to settle for a short list of probable causes all treated the same way here or whose treatments are compatible. For example, minor spinal cord trauma and a mild spinal cord stroke (arterial obstruction) are both treated the same way with rest and cortisone. Thus, it is not essential to go any further with the diagnosis to be able to treat the case if these are the two remaining probable causes on the differential diagnosis list. Neither cause would be affected by antibiotics and if the Veterinarian was worried about spinal meningitis as a third probable cause it would not hurt to treat with antibiotics as well. However, the meningitis might spread if cortisone was used so only rest could be used to treat the other two probable causes if the Veterinarian was considering a possible meningitis.

Once the diagnostic objectives have been met, the *third level* has been reached. At this level the Veterinarian applies his treatment, gives his forecast *(prognosis)* on the outcome of the case and generally informs the owner about the disease process and its treatment *(client education)*. If the animal is destined never to recover, then euthanasia may be advised, especially if the animal is going to suffer. The final diagnostic tool is a necropsy or postmortem examination of the tissues. It is vital in rare or undiagnosed diseases to have a good necropsy. This is how Veterinary Medical Science advances its knowledge. In Figure 6 an area of necrosis existed in the spinal cord. This explained what had gone wrong with a specialized test and enabled us to avoid making the same mistake again. Without a necropsy we would never have known and would not have been able to save other dogs from the same unfortunate accident.

When one outlines how a Veterinarian makes a clinical diagnosis, one has a simple progression from the basic physical examination and history at level one, through the differential diagnosis and diagnostic testing of level two, until the treatment and advice is given at level three. This simple model is useful to Veterinarians. It enables them to see exactly what they have to do in difficult cases. It enables them to accurately detect shortcomings in their skills and to correct them or to learn new skills. It enables them to see where they are spending the client's money and to understand the economics of diagnosis. It is just as bad medicine to order too many expensive, needless tests as it is to order none. It also enables Veterinarians to realize how valuable a good history and physical examination are. These cost very little except in time and if done well they may save suffering and money later on. The model enables the owner to understand what the Veterinarian is up to. Finally, it enables young Veterinarians faced with other "Susies" to logically use their knowledge to come to as rapid and efficient a diagnosis as possible.

TIPS ON CARING FOR THE AGING PET

BY Ilka Ford
California Veterinary
Medical Association

The process of aging effects our pets in much the same way as it affects ourselves. Just as we must make adjustments in our daily routine as we get older, so does "Fido". There are a number of things to keep in mind concerning the older pet. Many times a few simple measures taken by you will enable "Fido" to live a longer and fuller life.

Exercise is good for an old pet but in small doses. There should be shorter periods of play and longer periods of rest. Exercise improves circulation, aerates the lungs, improves elimination, and helps keep down body weight.

It has been observed that 80 percent of dogs over eight years of age have kidney diseases. Such damage generally develops slowly, over the years as the result of aging and of various diseases suffered by the dog. The early problems generally go unnoticed and lead, in time, to loss of general kidney function. The kidneys function to regulate the internal body environment. Every 30 minutes, the kidneys filter your pet's total blood volume; ridding the blood of unwanted harmful chemicals. Since there is such a high incidence of kidney ailments in older pets, fresh drinking water should be available at all times. Drinking large amounts of water may enable your pet to compensate for his ailing kidneys. Pets with kidney disease are frequently put on special diets by your veterinarian.

OTHER PROBLEMS

Various forms of cancer are common in older pets such as skin tumors and mammary tumors. Deafness and impaired vision are also common.

As an animal ages, cataracts often develop, impairing vision. Cataract is a clouding of the normally transparent lens in the eye. As the condition progresses, the pupil looks hazy, then milky, and finally, can be pearl white. Since the loss of vision usually comes on gradually, assuming the pet remains in the same surroundings, he often is able to adjust quite well. Pets may be blind and the owner unaware of the difficulty because the pet has adapted his senses of hearing and smell to aid in getting around.

Stiffness and pain in the joints and muscles may affect older pets, particularly following a rest period. Arthritis of the hips and spine is frequently seen in large breeds of dogs as they become older.

Heart disease is quite often encountered in aging pets. Dental problems that lead to more serious medical problems are frequent in older pets and some demand medical attention.

WHAT TO DO?

When detected early, many conditions can be stabilized and your pet will be able to live a more comfortable and active life. In many of the diseases seen in older pets, curative measures are not available. In many of the diseases seen in older pets, curative measures are not available. However, many degenerative processes can be slowed down and an animal's life can be comfortably prolonged by proper medical management.

Early detection and early treatment are essential for best results. If you suspect your pet is having difficulty, seek prompt medical attention. A preventative examination every six to twelve months in the aging pet is well advised.

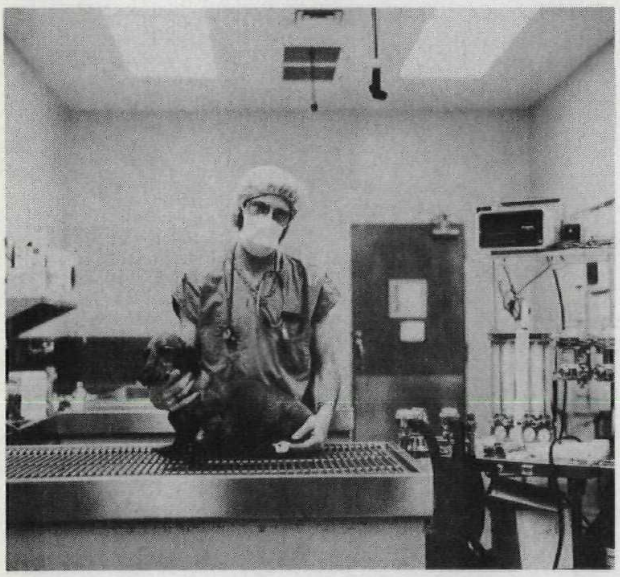
FRONTIERS IN PET HEALTH

By Nancy Friedman

". . .The veterinary school of the University of California at Davis is in the vanguard of a revolution in the practice of animal medicine. . ."

Personally, I have always felt that the best doctor in the world is the veterinarian. He can't ask his patients what's the matter...he's just got to know.
Will Rogers

Animal anesthesiologist: Dr. Fredric Stevens prepares a dachshund for slipped-disc surgery.



Pet behaviorist: Dr. Victoria Voith counsels her well-adjusted dog and a very nervous cat.

The patient on the examination table in Dr. George Muller's Walnut Creek clinic has been sedated and anesthetized and is about to have his nose tattooed. Vanity has nothing to do with it; the procedure is a matter of life or death for the patient, a collie-sheltie pup.

The dog's nose lacks natural pigmentation, and when exposed to sunlight, it begins to peel, ulcerate and bleed— a condition common enough to be dubbed "collie nose." Without the protection of tattooing, the dog would eventually begin to sneeze blood, probably develop cancerous lesions, and within three years would have to be put to sleep. With the tattooing, he will snuffle happily through a normal canine existence.

Muller checks the respiratory monitors to make sure that the dog is receiving the correct anesthetic mixture of halothane and oxygen through a trachea tube. He puts on an ink-spotted gown, mask and gloves. During the dog's last visit, Muller used a tattooing machine— the same kind used for human ornamentation—to pump ink into the dog's nose at 250 vibrations per second. Now, on a follow-up visit, he fills a syringe with black tattoo ink and, using a magnifying glass, he begins the delicate process of coloring the remaining raw spots on the dog's snout and nostrils.

A few miles away, in another Walnut Creek clinic, Dr. Stephen Ettinger attaches a two-year old Newfoundland to an electrocardiograph machine. The dog stands nearly three feet high and is vaguely cooperative in the manner of large dogs. Ettinger takes some readings, and then asks an assistant to hold an amyl nitrite-soaked blotter under the dog's nose. More readings are taken to see if the heart problem is intensified by the amyl nitrite.

The findings corroborates the x-ray evidence—the dog suffers from congenital aortic stenosis, a narrowing of the passage between the heart and the major artery supplying blood to the body. Later, Ettinger will tell the dog's owners—a couple who drove 30 miles for the diagnosis—that surgery may be required within six months if the drug he's about to prescribe doesn't widen the passage. They look sour as he tells them that the dog should not be bred.

These could be scenes out of *General Hospital* plus fur and paws, and the comparison is not meant to be facetious. Muller and Ettinger are two of the best among a tiny (and new) elite—the veterinary specialists. Muller, a fiftyish man of soft-spoken, Central European cordiality, is one of only sixteen board-certified veterinary dermatologists in the United States; Ettinger, 38, is doubly rare—a board-certified specialist in both internal medicine and cardiology.

To the average pet owner, whose contact with the veterinary profession may be limited to the four major passages of animal life—vaccinations, sterilization, wound-bandaging and euthanasia—the notion of veterinary specialties may seem incredible. But it's part of a profound change in the function of the pet animal and in the sophistication of the doctor who treats him.

As recently as 50 years ago, dogs were used mostly for hunting, shepherding or guarding, and cats mostly for mousing. Today, the pet owner's emotional involvement with an animal may be intense. "The major role that a pet plays in its owner's life is a therapeutic one," says one veterinarian. "It's a cold, insecure world; people have a hard time dealing with one another. And here's this four-legged creature who gives you nothing but love and asks for very little in return."

The new attitude has resulted in a new demand for high-quality pet care. An office visit to a veterinary specialist costs from $20 to $30 (compared to about $10 for a visit to a veterinary general practitioner), and the added costs of radiology, surgery and drugs can push up the cost of treatment to several hundred dollars for a specific health problem. The willingness to pay these prices—and the increasing number of malpractice suits against veterinarians—attest to the emotional energies that are fueling the vanguard of veterinary medicine.

In California, veterinary medicine begins and ends with the University of California at Davis. Its veterinary school—the only one in the state, and one of just 25 in the United States and Canada—turns out 94 doctors of veterinary medicine (DVMs) each year. Next fall, the entering class will increase to 128 students. And the Davis hospital and laboratories are the final resort of veterinarians and animal owners in the state. In 1977, *Change* magazine ranked the Davis veterinary school number one in three major areas—teaching, research and service.

Davis's Veterinary Medical Teaching Hospital (VMTH) makes many local clinics look like mom 'n' pop operations. Housed in a gymnasium-sized structure off Highway 113 in the southwest corner of the campus, the VMTH consists of a large-animal clinic on the ground floor and a small-animal clinic on the second floor, with barns for treatment and hospitalization located nearby. While the largest private veterinary practice in California has fourteen doctors—and the average clinic has only one or two—the VMTH has a staff of 80 faculty doctors, 28 residents, twelve interns and, for part of their training, the entire fourth-year class of students.

The clientele ranges from multimillion-dollar racehorses to epileptic house cats, from the occasional deer or wild boar to dogs with prolapsed discs. The Special Exotic Animal Clinical Service routinely treats the 200 animals of the Sacramento Zoo—including elephants and Bengal tigers—as well as unusual house pets: snakes, ocelots, tortoises, monkeys and falcons. Each incoming patient is issued a plastic "credit card" for use on all hospital forms, and an indestructible neck tag; I counted eleven standard triplicate forms in a typical exam room—hematology, urinalysis, radiology, parasitology and so on. Charts are filed in the halls to enable students to check out interesting cases.

Beyond the exam rooms, the human visitor enters a slightly surreal territory. Amid the institutional gleam and bustle area series of odd tableaux: a half-dozen electric clippers dangling by their cords from the ceiling in a minor surgery room; a Jacuzzi and cages with built-in dryers in the bathing and hydrotherapy room; a doctor named Pidgeon giving a seminar on pancreatic exocrine deficiency; four cats, looking more like former cats, in the major surgery area—anesthetized, draped and identically incised, each with a little heap of ovaries and uteruses beside it.

My guide on the tour is Dr. Fredric Stevens, a DVM now doing post-doctoral training and research in veterinary anesthesiology and animal acupuncture. It's a different perspective than the one offered on the public tours that can be arranged through the hospital administration. Like most veterinarians, Stevens feels obliged to set the record straight about his calling.

"There's a deep lack of understanding of what we do," Stevens explains. "For instance, a 'spay', or female neuter operation, is major abdominal surgery, equivalent to a human ovario-hysterectomy. The instruments, techniques and medical risks are quite similar. Yet the total cost for a spay is usually $40 to $100 while the human ovario-hysterectomy can be in the thousands.

Contrary to popular fantasy, veterinarians are not using cash for kitty litter. A newly graduated DVM makes about $15,000 a year after investing eight years in school, and an experienced vet who operates his own hospital rarely makes more than $50,000 a year for working a six-and-a-half-day week. Yet he must lease or set up and maintain a complete pharmacy, a diagnostic lab and an x-ray machine; a surgery room requires special equipment, ranging from sterilization equipment to anesthesia and monitoring machines.

"The veterinarian is caught between the opposing forces of the desire to practice modern, sophisticated medicine—and the realities of the financial limitations of the average owner's pet-health budget," explains Stevens. "He must walk a tightrope between the owner's expectations—'The dog only cost me ten dollars!'—and the rising costs of medical supplies, equipment and staff."

The VMTH at Davis, as Stevens points out, is performing the research and training that allow the veterinarian to practice the highest level of medicine. As we enter the cardiology ward, for example, we encounter a two-pound Pomeranian from Visalia whose veterinarian diagnosed a heart murmur during a routine physical exam and sent the dog (and owner) to Davis. At the VMTH, the condition was diagnosed as patent ductus arteriosus—a developmental heart defect that's relatively common among human babies as well as Pomerarians—by a Davis veterinarian who is currently working on the disease in cooperation with the Davis medical school.

According to the Pomerarian's chart, the dog is recovering nicely from open-chest surgery. It's easy to understand why the Visalia veterinarian didn't attempt the operation himself—it's a dangerous and demanding operation on a moving target, requiring special instruments and equipment. Anesthesia alone can be an overwhelming risk with a two-pound patient. Since veterinary patients routinely range in size and species from hamsters, house cats and dachshunds to Great Danes, draft horses and dairy bulls, the Davis veterinary school offers postdoctoral residency training in anesthesia and intensive care.

Critically ill and acutely injured animals—Davis sees a lot of them—are rushed to the intensive care unit, which

FRONTIERS IN PET HEALTH

is equipped and staffed to deal with medical emergencies 24 hours a day. Thanks to the automobile, the intensive care unit treats a whole new classification of animal trauma—the HBC, or "hit by car." Emergency drugs, oxygen lines, EKGs, respirators and defibrillators line the walls. Oxygen cages are available for animals in respiratory distress, and metabolic cages carefully measure the input and output of the animal's body to maintain or restore the proper balance of fluids. Veterinary students serve on rotating nursing shifts to provide constant monitoring and recording of vital signs and treatment in progress.

The atmosphere in the large-animal clinic is much different. Although no adequate substitute for the human arm has yet been devised for performing rectal exams on horses, the clinic is full of enormous and faintly medieval-looking instruments. While the "companion animal" laboratory's $1.5 million budget paid for a $10,000 hydraulically operated table that tilts for diagnosis of pregnancy and reproductive or gastro-intestinal disorders in livestock. Important work has been done here in studies of endurance in trail horses; cattle and sheep embryo transplants, which have provided data used to improve the herds and breeding stock.

On the day of my visit, a new anesthetic combination is being used on a horse that is to be castrated. The drugs take effect gently, the horse falls gracefully and without injury, and the senior veterinary student who wields the scalpel this week (under the direction of a veterinarian) goes to work. He has only twenty minutes or so to complete the procedure before the anesthetic wears off. A few minutes later, the horse regains his footing—and the veterinary student comes away with the training and techniques that will be put to use on animals patients who may never see the inside of the Davis facility.

Davis is the scene of some fairly exotic medical research. Dr. Victoria Voith, a 33-year old DVM with a master's degree in psychology, uses drug therapy and Skinnerian behavior-modification techniques to treat aggressive, destructive or just plain obnoxious animals; together with Davis's other behaviorist, Dr. Benjamin Hart, Voith has used synthetic progestin to correct aggressive behavior in dogs and spraying in both male and female cats.

Two Davis veterinarians, Drs. Niels Pedersen and Gordon Theilen, have developed a vaccine for feline leukemia—the first live-virus cancer vaccine in any species. Pet overpopulation has caused localized epidemics of the fatal virus, which can also cause other feline diseases such as anemia and the "fading kitten syndrome." Although the vaccine is still in the laboratory-test phase, Pedersen is optimistic about the implications of the discovery: "If they ever discover a cancer-causing virus in people, we could be called into service."

But the outer limit of veterinary medical research may be the pioneering studies of animal acupuncture. Mention acupuncture to some veterinarians and you're likely to get a scornful response: "Why do you want to talk about that freaky stuff when so much good, solid medicine is being practiced?"

Mention it to Dr. Jim Bullock, and you'll hear about the dogs with lick granuloma—a disease which causes the animal to gnaw compulsively on its foreleg—the dogs who'd been treated with sterioids and cobra-venom injections and even with sutures and casts but who went right back to chewing their legs until Bullock inserted acupuncture needles in their unaffected forelegs. After a single treatment, the dogs would be tranquil enough to permit treatment of the wounded area; after two or three more treatments, they would stop chewing and the wounds would heal naturally.

Bullock is a 32 year-old Newhall veterinarian who happens to have a black belt in jujitsu. In fact, his interest in *chi*—the internal energy supposedly tapped by acupuncture—preceded his veterinary studies. Last November, Bullock gave a three-hour talk at the Davis veterinary school, outlining his acupuncture procedures and their results. The students clamored for more, but the university, Bullock says with a trace of a bite, "is standing back in quiet reserve."

Well, not quite. Dr. Fred Stevens, the veterinarian who guided me through the VTMH, is working under a small grant to study three aspects of the effects of acupuncture on animals—as anesthesia, as a method of influencing fertility in lab animals and as a potential clinical treatment for certain diseases.

Since Stevens's projects are still in the planning stages, I decided to see for myself how one goes about acupuncturing an animal. I arranged to meet Dr. James Steere at a Marin County ranch where he was going to "needle" a thirteen-year-old Thoroughbred named Lief. (The ranks of veterinary medicine are packed with what columnist Herb Caen calls "namephreaks"; besides Dr. Steere and Dr. Pidgeon, I also encountered a Dr. Fowler and a Dr. Peacock—and learned that the San Francisco Veterinary Medical Association occasionally holds its meetings at the Old Poodle Dog restaurant.)

Lief, the Thoroughbred, has been lame in his left forefoot for at least eight years. Pain killers and cortisone have failed to cure him, and now the owner wants to try acupuncture. Steere injects a tranquilizer into the horse's jugular vein and then Novocain into two acupuncture points—places where the energy meridians are near the surface—around both forelimbs. Then he inserts one-and-a-half-inch acupuncture needles into the same points, six on each foot. Although sedated, Lief is twitchy and won't allow Steere to get a needle in his neck.

Steere leaves all the remaining needles in the horse for fifteen minutes, twirling them once "to bring the *chi* up." When the fifteen minutes have passed—"when the *chi* arrives," explains Steere—the needles then fall out. But no miracles have been worked; at least one more treatment will be needed in another week. Steere prescribes two days' rest for the horse and tells the owners to expect their animal to be relaxed and "happy" the following day.

Back at the redwood clinic that he designed and built, Steere explains that he gets the best results when using acupuncture to treat chronic problems such as spinal-disc

ailments. And he freely admits that he doesn't know why: "After 25 years of practice, I'd have to say that a lot depends on your timing," he says. "And when you feel good, when you have high energy, animals respond."

While the scientific answers to the questions about acupuncture await the results of university studies such as those that Stevens did, public demand grows and clinical experimentation continues. The first scholarly books in English on veterinary acupuncture has been published by a University of Pennsylvania veterinary school faculty member and by the National Association for Veterinary Acupuncture; other research projects are being carried out at the veterinary schools at Purdue and the University of Georgia. And the veterinary students at Davis are already taking their discipline a few steps beyond the conventional practice of veterinary medicine by organizing a committee on "alternatives in veterinary medicine" to share information on acupuncture as well as human-animal communication, iridology and homeopathic medicine, and other aspects of "holistic" medicine.

On the most basic level of medicine, distinctions between humans and animals vanish, and one confronts the pan-species mysteries of brain function, of immunological quirks and failures, of genetic misfires. Which is why acupuncture and other "energetic" techniques have so much appeal—they offer simple explanations for diverse and complex phenomena. Which is why veterinarians regard their patients not as "dumb animals," but as creatures with more similarities than differences. To the human observer, veterinary medicine offers the prospect of learning how to heal ourselves by healing animals.

A herd of Angora goats is discovered to suffer from sickle-cell anemia; Davis research veterinarians seize the opportunity to investigate how the pathogenesis of the goats' disease may parallel the same condition in human beings.

Dermatologist George Muller conducts field trials of a new drug for dogs that are suffering from demodecosis, considered a severe skin invasion of microscopic mites, and finds that the treatment is proving 100 percent effective. Muller asks himself: Can this drug, which is thought to trigger an immune mechanism, be used to treat the disfiguring human skin disease known as rosacea which seems to be linked to the same species of mite?

Veterinary behaviorist Victoria Voith treats a disoriented dog with an anti-epileptic drug and observes a remarkable recovery. What other brain dysfunctions are common to both humans and animals, and what do we need to know about their treatment?

The pet owner may never encounter these aspects of veterinary medicine. Instead, the owner of a beloved pet is probably more interested in the prospect of more veterinary laboratories, more veterinary emergency clinics, more specialists working in cooperation with better-informed general practitioners, safer surgical techniques and faster diagnostic methods.

Yet these advances are not unrelated to the research that is now being conducted on the biological frontiers of the university laboratory and the specialist's clinic. There is, after all, a common impetus and a common goal: the greater understanding of life mechanisms and the more efficient eradication of life-threatening disease.

THERE'S A SNAKE IN THE LIVING ROOM!

Rebecca Norris

One's first encounter with a snake may be as unplanned as being bitten by one while hiking, finding one in your living room, or reading about one in the Bible where snakes are depicted as being evil creatures. These experiences obviously don't do much to curb one's fear of snakes, and topped with the fact that snakes are odd looking creatures, it is no wonder that many people avoid snakes whenever they can. Snakes can be fascinating animals to study and observe, however, when one knows a bit about their habits and characteristics.

When people think of snakes, they usually envision a long evil looking serpent with a forked tongue. The snake's tongue is not used for "stinging" as some people seem to think, however, but rather is used for smelling and tasting. A sample of air is collected on the tip of the tongue and is quickly withdrawn into the snake's mouth. When it comes in contact with the Jacobson's organ on the roof of the mouth, the smells and tastes are interpreted by the brain.

If one is not scared off by the tongue of a snake, he still has to contend with the snake's array of needle sharp teeth. These teeth are sharp and curve back towards the rear of the mouth. They are occasionally used for biting, but their main function is to aid this reptile in holding his prey; not to chew it as is the popular belief. Venomous snakes have a pair of fangs in the front or back (in the case of rear-fanged snakes such as the coral snake) of the mouth, in addition to their regular teeth. These fangs are retracted but come forward when the snake strikes. Venom, which is stored in poison sacks contained on each side of the head, is then injected into the victim through grooves in the fangs.

Snakes are legless reptiles, usually long with slender bodies that are covered with overlapping scales. These scales give the reptile a slippery (not slimy) feeling when it is wet. Snakes also have an intricate network of muscles that cover their ribs. This allows the reptile to move on level ground, climb trees, and surprisingly enough, swim with ease and fluid grace. The lung of a snake (it has only one) extends two thirds of the length of its body. The intestines and other digestive and reproductive organs are also stretched out along the snake's length.

The snake, a rather primitive animal along with lizards, some birds, and many amphibians, has not developed the complicated structures such as a muscular tongue, grinding teeth, and strong jaw muscles that are needed for the chewing of his food. Instead, the snake swallows his prey whole, and can then go for several weeks without food. This method of feeding is made possible by a combination of unique adaptations that have evolved over millions of years. The snake's jaw is specially constructed so that it can be unhinged to aid in swallowing large prey, and the skin around the neck can also expand, being very elastic. Even the trachea of the snake is adaptable and is capable of protruding a short distance out of the snake's mouth. In this way, the animal can spend a long time to swallow its prey without suffocating.

As they grow, snakes periodically shed their skins. When they are young they may shed their skins as often as every two weeks, but adult snakes often only shed three or four times a year. In rattlesnakes, a new segment is added to their "rattle" every time they shed, which may be several times a year. Thus, contrary to popular belief, the number of segments does not tell how many years old the snake is, but tells how many times it has shed its skin. When any snake prepares to shed, a fluid is secreted between the old skin and the new layer forming underneath. This milky fluid is apparent when the snake's skin becomes dull, and when the fluid appears under the eye caps, causing temporary blindness for a day or two. In a few more days the whitish tissue paper-like skin loosens on the snake's head, and by rubbing his body against rough stones and to some extent by muscle contractions, the skin, complete with the two eye coverings, is permanently discarded. The shedding process helps to rid the snake of ectoparasites such as mites, in addition to showing off his shiny brand-new skin.

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EUTHANASIA OF DOGS AND CATS

The rate of progress in euthanasia methods for animals during the first 25 years of World Federation for Protection of Animal's existence has been remarkably slow. At a meeting in Oslo in September 1975, the Council of WFPA agreed to establish a select working group of persons experienced in various aspects of the euthanasia of small animals, principally dogs and cats. Prior to leaving the post of Chief Consultant of WFPA, Tony Carding, BVSc, MRCVS, released a document to the members of the international working group established by him. From the comments received, a final report has been prepared by Dr. Michael Fox, the internationally renowned behavioural scientist, and can be obtained at a cost price of US $4.00 by writing to the WFPA Secretariat. Dr. Fox has only recently been named Director of the Institute for the Study of Animal Problems, a Division of the Humane Society of the United States, a member society of WFPA. A condensed version of the report will be published in the WFPA-sponsored ANIMAL REGULATION STUDIES by the Elsevier Scientific Publishing Company in Amsterdam. The following quote from the introduction to the important survey merely states the problem and the purpose of the collaborative effort.

Euthanasia is a term much misused. While the concept of a "good death" may be essentially Greek in origin, like the word, some people in the West as well as many more influenced by Eastern cultures find the idea contradictory. Suicide apart, the term is commonly used as an euphemism for killing, albeit in a manner which causes only limited distress.

Distress measured in the eyes of an observer, dispassionate or otherwise, has necessarily been a subjective process until quite recent times. Nevertheless, the tools for evaluating the degree of distress in animals being killed in one way or another have been available for more than twenty years and during the intervening period the refinement of method and interpretation of results has progressed. It is remarkable that there has been so little application of these tools, particularly electro-encephalographs (EEG) but also electro-cardiographs (EKG) and measurement of blood pressure, to determining first of all which agents or methods are inherently capable of causing painless death and which of them, by modification or insistence upon practical but essential precautions, can be safely and economically adapted to invoke a painless death.

Of the physical methods, shooting comes nearest to being a proven method of killing dogs and cats in a manner approaching the ideal of euthanasia. It has been rejected, often with little consideration, because the sight of blood disturbs some people more than other features associated with killing. From the animals' viewpoint, it deserves to be more widely used.

Decompression does not yet appear to have been adequately investigated with respect to its effects on dogs and cats for it to be considered as an acceptable form of euthanasia. It is an efficient means of killing large numbers of animals.

Electrocution is an effective method of killing. In view of the difficulty experienced in having long-known precautions utilized in the design and operation of equipment the method is deservedly treated with greatest circumspection.

Among drugs which can be administered by injection only one group is considered effective and humane. This is the barbiturates of which sodium pentobarbitone (pentobarbital sodium) is the example most widely used. Properly administered, it causes death in a way generally considered to be the ideal for euthanasia. Providing the proper administration, overcoming the relatively high cost and the difficulty of obtaining supplies are the chief obstacles preventing the wider employment of barbiturate euthanasia.

Of the gases and their various combinations, only carbon monoxide from exhaust fumes is in wide use for killing dogs. Carbon dioxide is being used on a small scale to kill cats and laboratory animals while carbon dioxide with chloroform is being used is a few places on dogs and cats, and nitrogen is beginning to be adopted for killing dogs and cats in the USA.

Many veterinarians are of the opinion that there are only one, possibly two, killing methods known to be capable of routinely invoking death without suffering, namely intravenous injection of certain barbiturate compounds, and shooting. Of the unknown millions of dogs and cats which are killed each year throughout the world those which benefit from euthanasia are an insignificant percentage.

The extent of the confusion internationally is amply demonstrated by the fact that the commonest methods used in each of two major English-speaking countries are mutually acceptable. Decompression chambers used throughout the USA have not so far been demonstrated in Great Britain while the electrocution chambers widely favoured in British animal shelters have been condemned in principle by American authorities.

Undoubtedly, one of the most constructive attempts to evaluate killing methods for dogs and cats was the Report of the Panel on Euthanasia of the American Veterinary Medical Association (1963) subsequently up-dated by a fresh Panel in 1972. Before and since these initiatives the most concerted efforts to assess and develop euthanasia methods have been promoted by the Universities Federation for Animal Welfare, London. Valuable though these interventions have been it is clear that the uncertainties and controversies remain unresolved.

It was the desire to reinforce these initiatives and the wish to overcome the blocks of language and geography which prompted the SFPA, Zurich, to establish an international working group on euthanasia of dogs and cats in 1975. The working group is loosely constituted of persons with veterinary experience in killing animals and who also have access to laboratory resources for undertaking further research. This reflects the necessity of not only assessing present knowledge and experience but of pursuing those lines of endeavour which analysis suggests will be most rewarding. The objective of the Group is eventually to make recommendations on the subject which can be accepted with some confidence by those who must decide by which method animals in their charge shall be killed. Equally, no doubt, by which methods animals in their charge shall **not** be killed.

SMALLEST ANIMAL SHOW

To trace the beginning of the postage stamp, one must go back to the early history of letters and the methods used for carrying them. It was at the beginning of the twelfth century that King Henry I of England appointed a number of messengers and runners to take his messages from one part of the kingdom to another. In those days there were no set routes for the runners; they linked London with any place where the king happened to be. In the reign of Henry III these messengers were put into the royal livery and their journeys all over England, and even to foreign countries,

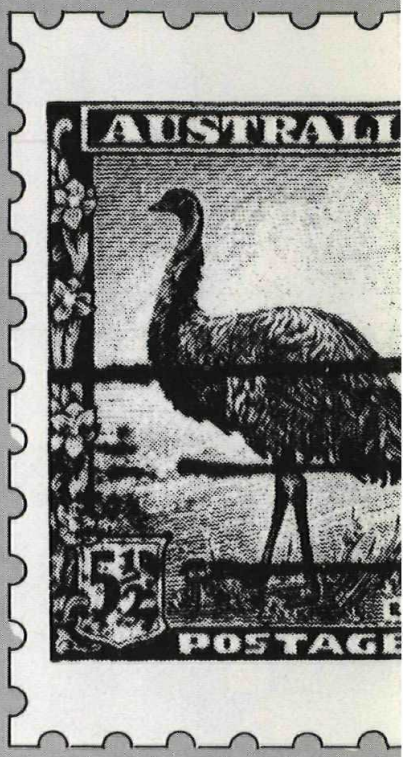
became more and more frequent. Not only did they carry messages for the government and the royal family but they also carried the private messages of court officials and friends of the king.

In these days, the same messenger carried a despatch from the time he left on his journey to the time when he finally delivered the letter at its destination; but when King Edward IV was at war with Scotland in 1481, this system of a single messenger for each despatch was abandoned and relays of messengers were established. Edward IV arranged for horsemen to be available every 20 miles along the route. By this means it was possible for a letter to be carried at the rate of a hundred miles a day.

It was in the reign of Edward II that letters were first marked with the celebrated injunction to the messenger "Haste, post haste". In 1533, Thomas Cromwell the lord Privy Seal, called upon Sir Brian Tuke (appointed by Henry VIII as "Master of the Messengers and Runners") for a report on the condition of the posts at that time. Among other facts he reported was that


PERU
S/.0.20
VICUÑA SP. PERUANA SIMBOLO EN EL ESCUDO NACIONAL Y PRODUCTORA DE LA LANA MÁS FINA
IMPERIO COLONIAL PORTUGUES
MOUSINHO DE ALBUQUERQUE
CORREIOS
40
MOCAMBIQUE
C.
U.S. 6c
AFRICAN ELEPHANT HERD
POSTE ITALIANE
CENT. 50
LANAS
REPUBLICA ARGENTINA
30
Postage

SMALLEST ANIMAL SHOW



people sometimes dated their letters a day or more before they were written and when these letters were delivered, apparently late, the post was blamed for its inefficiency.

In 1660, Charles II granted Henry Bishop a monopoly to carry the mails, for which Bishop agreed to pay the King 21,500 pounds a year. He introduced many improvements, including the postmark, which showed the day the letter was received at the post office. It was not until 1837 that Rowland Hill published his famous pamphlet "Post Office Reform", in which he set out his idea for a low uniform rate of postage on all letters carried between any town in Great Britain, no matter what the distance. He suggested the using of "a bit of paper just large enough to bear the stamp, and covered at the back with a glutinous wash, which by applying a little moisture might be attached to the back of the Letter". He had great difficulty in convincing the Post Office of the soundness of his scheme. Finally it was accepted, however, and on January 10, 1840, uniform penny postage became operative and on May 6, 1840 the famous "penny black" postage stamps were first brought into use.

It was some time before the government of other countries realized the great advantages offered by this

new method of prepaying postage. Although the first stamps issued by the United States Post Office did not make their appearance until August 1847, adhesive stamps had been issued some years before by the letter carriers and by individual postmasters to facilitate the prepayment of postage. Brazil was in fact the first country to follow Great Britain's lead and issue general stamps as distinct from locals. The first Brazilian stamps were issued on July 1, 1843. Mauritius was the first British Colony to issue adhesive stamps (September 21, 1847).

Canada was the first country to issue a stamp showing an animal (a beaver), issued on April 23, 1851. The design was by Sir Sanford Fleming, and the stamps were printed in New York. Sir Sanford chose the beaver for the first Canadian stamp because beaver skins had been a form of money in Canada for many years. Since then, there have been thousands of issues of stamps from countries scattered all over the world, that show pictures of four-footed animals and birds. There is everything from the antelope of Rhodesia to the zebu of Madagascar, and from the aurochs of Rumania to the platypus of Tasmania. French Guiana issued a stamp sshowing the myrmecophaga jubata, Myassa has used camels and giraffes, the Congo Free States showed an elephant hunt, China had depicted white elephants, the Malay States tigers, North Borneo an orangutan, Madagascar a lemur, Australia a kangaroo, etc.

In addition to being an interesting way to learn something of geography, zoology, economics, history, etc., stamp collecting has over the years been a good investment. Rarely has their value declined, and in some instances the current value is many thousands of times the original. Collecting stamps does not necessarily require a great deal of money—it can be started on a very modest basis, and provides a great deal of pleasure.

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LIBERIA
POSTAGE
BAY-THIGHED DIANA MONKEY
10 CENTS 10
NEWFOUNDLAND
POSTAGE
CARIBOU
MONARCH OF THE WILDS
5 FIVE CENTS 5
POSTES
RF
30c
AFRIQUE EQUATORIALE FRANÇAISE
2
ESCS
PORTUGAL
WILDLIFE CONSERVATION
WHOOPING CRANES
U.S. POSTAGE 3¢
MADAGASCAR
POSTES
60c
RF
TROUPEAU DE ZÉBUS

Castration Of The Dog

by John C. Stevenson, D.V.M.

Predatory free-roaming dogs have been a problem to man and his livestock for all of recorded history. An article by Alexander Hadden, M.D., published in the April 1880 issue of the **Journal of Comparative Medicine and Surgery** pointed to the solution of this problem almost a hundred years ago. Except for two inconsequential deletions, it will be presented verbatim.

"The raids made by dogs upon sheep and other defenseless domesticated animals, such as fowls, have been so frequent, and the consequent destruction of property throughout the United States alone has been so great, that almost every means that could be thought of to prevent them and still retain this useful animal as a part of the household has been devised and put into practice, but, as yet, with only partial success.

The chief preventives hitherto employed have been the following: the destruction from time to time of the animals themselves; the assessments of damages upon the owner of the culprit; the levying of a tax upon dogs, the revenue arising from which to be applied to the liquidation of all damages resulting from these raids; the breeding and employment of varieties of species--namely, such as might be thought to be less prone to offend in the manner indicated, in preference to other varieties more likely to offend.

As the statistics show, none of these expedients, nor all of them together, have yet been found effectual in preventing the evil. The Commissioner of Agriculture, in his report for the year of 1865, makes the following startling statement in regard to the ravages of dogs upon sheep in the United States; and this, too, comprises only the returns from 373 counties of 23 States. Number of sheep killed by dogs in the United States in that year (1865) 77,854. From this he estimates the whole number of sheep killed by dogs in the United States during the same period at, in round numbers, no less than 500,000 head, and the loss to the growers at $2,000,000. Since 1865 no reports have been made, but there is good reason to believe that all the ravages since then, and subsequent pecuniary loss, annually, have been no less.

The offense alluded to is about the only one of consequence with which the dog, the companion and friend of man, is justly chargeable. And it is not upon sheep alone, but also upon calves, and even fowls of the barnyard, that he makes these sallies. All this, of course, helps swell the aggregate of the loss entailed. To prevent this, if possible; to remove or subdue this objectionable trait in his character--a vice, and which, indeed, seems to be almost the only remaining vice pertaining to his wild state--and to more thoroughly domesticate the animal, should now be our aim. In order to accomplish an end so desirable the most fully and completely, we venture to suggest that no method that can be devised will do this more effectively than castration; castration of the males and spaying the females of all such as are allowed to run at large.

Upon inquiring into the matter, we find that dogs are not driven to undertake these raids by hunger or by any other such uncontrollable propensity or desire, but are actuated wholly by a spirit of mischief, which seems to be an incidental remmant of their wild state. Furthermore, we discover that the dog never goes on these raids alone. He always seeks a companion of his own species, and sometimes the animals go in packs. It is noticeable that these raids are almost invariably preceded by the intimate association of neighboring dogs.

Castration produces a change—if we may be allowed the expression—in the moral character of the animal. The objects of his attachments are now different. Whereas, before, he wandered from home, seeking the companionship of others of his kind; now, he becomes more firmly attached to his home, and more dependent than ever upon his master.

I put this method—that of castration—into practice about six years ago, and have always suggested and advocated its employment. The animal then operated upon was a watch-dog, and only a mongrel pup. He did not grow fat and sluggish as all authors writing upon the subject state that castrati will do. But he still continued to be bright and active as he was before, and remarkably docile. One of my friends, who owned a very fine shepherd's dog which had been castrated, thinks that the operation has been in all respects a success, and states that the animal has retained all useful qualities as a farm dog. Dr.. C. Burden, veterinary surgeon, says that one of the best rat-terriers that he ever knew was a castratus.

We have a letter from a gentlemen living at Mount Pleasant, Wayne Co., PA. . . . He says in the letter referred to: "I have during a period of many years operated on a great number of dogs, and I have never to my knowledge killed a dog by so doing. And I can truly say, that I have never known a dog whose habits were not materially improved by the operation. I think they will last longer and do better service." On being interrogated, he states further, that he never has known a castrated dog to have hydrophobia, or to engage in killing sheep. Not because a castrated dog might not contract hydrophobia the same as another if bitten by a rabid animal, but he is not so apt to associate with other dogs, hence his chances for taking the disease are reduced to a minimum. Canine madness is thought by some authors to originate in ungratified sexual impulse; hence, as our correspondent states, this disease cannot originate with the dog that has been castrated. And although, as stated, he has never known a castrated dog to kill sheep, he is yet willing to allow that such might do so, if the habit had been formed previously. He, therefore, recommends that all dogs intended for domestic use should be castrated at an early period of life; say when not more than six months old, before the have had an opportunity to contract any vicious habits.

Mr. Darwin, in his researches into Natural History, tells us that in **Banda Oriental**, in South America, it is common thing to see flocks of sheep guarded by one or two dogs at a distance of some miles from any house. . . . "The puppy is, moreover, generally castrated, so that when grown up, it can scarcely have a feeling in common with the rest of its kind. From this education it has no wish to leave the flock, and just as another dog will defend his master, man, so it will defend the sheep." We do not quote our author at length, when he describes minutely in what the education of these dogs consists, but content ourselves with stating the fact of their castration. . .

The statement made above, that raids upon sheep and other defenseless animals are made only by the male canine is corroborated by the testimony of Wm. A. Conklin, Superintendent of the Zoological Department of Central Park, New York. When these maurauders frequent in greater numbers than usual the enclosures where deer and certain animals are kept, an attempt to abate the nuisance is sometimes made by poisoning the offenders. Among the dead bodies found afterwards lying about, Mr. Conklin states that he has never yet found a bitch.

To the reasons already urged for the castration of the dog we might add further, that in the emasculated condition he makes a less objectionable house pet, and is in this respect far superior to the bitch. He will also live to a greater age. As a watch-dog he is not likely to be decoyed away from the post of duty by a bitch in heat, or by any other dog. This is a well-known strategem which thieves and burglars frequently employ. Obscene street scenes would be avoided. There is a law to prevent stallions and rams from going on at large. In the interests of decency the same law should, we think, be extended also to the dog, if the other sufficient reasons which have been urged do not prevail."

On reading that ten years ago most veterinarians, including myself, would have put Dr. Hadden down as some kind of kook--even though almost all veterinarians would have agreed that tomcats must be castrated in order to turn them into livable house pets. However, in the June 15, 1976 issue of the **Journal of the American Veterinary Medical Association**, a team of researchers from the School of Veterinary Medicine, University of California, Davis, reported similar findings.

The team, made up of Sharon G. Hopkins, D.V.M.; Thomas Schubert, B.S.; Benjamin L. Hart, D.V.M., Ph.D., found that: castration of male dogs reduced roaming by at least 90%; behavioral pattern changes such as fighting with other males, urine markings in the house, and the cessation of mountings of other dogs and people, were reduced by one-half to two-thirds. However, there was no lessening of fear induced or territorial aggression.

No doubt these findings will be resisted by some both within and outside the profession. The legitimate breeder will find he has nothing to fear. The cat fancy, which has lived with the reality of castration, must now become the role model for the dog fancy. However, there is a great need for added publicity of the Davis's team report. We have all dragged our heels too long. Next April will be the 100th anniversary of Dr. Hadden's report. . . . This time lag is one that can't be allowed to go on much longer without serious repercussions. And the dog, man's best friend, stands to be hurt the most.

SNAKE IN THE LIVING ROOM!

Continued from page 22

Snakes, strict carnivores, feed in three main ways. Garter snakes and their kin simply catch their prey (usually large insects, frogs, fish, or small rodents) and swallow them whole. Egg-eating snakes such as the Indian Egg Eater, swallow an egg and crack the shell by constricting their muscles or pressing their bodies to a tree trunk. They then extract the yolk and regurgitate the shell which is broken into many pieces but is still attached to its membrane. Poisonous snakes strike their prey (rodents and other small animals) and paralyze or kill them with potent venom. The last method of restraining and eating prey is by constriction. The Boa Constrictor, who feeds on quite large animals, uses this method. The animal is first cornered or bitten and many coils of the snake are thrown over it. The snake then slowly tightens some coils while resting others, and then relaxes the first. In this way he doesn't tire easily. When constricting, the snake does not break the animal's bones, nor does he crush vital organs as some people think. He merely keeps the lungs from expanding and the prey dies from asphixiation.

Reproduction in snakes may be viviparous or ovoviparous, depending on the species. Garter snakes and ribbon snakes, for example, bear their young alive, while the European water snake lays eggs. Gestation in garter snakes is about three months, and as a general rule, the larger the species of snake the longer the period of gestation. Snakes spend their lives along (except for some species that hibernate in large colonies) but find a mate during the breeding season. The female takes no care of the numerous young, which are totally independent from birth.

Now that you know considerably more about the habits and characteristics of snakes, these fascinating creatures will probably not seem so frightening. In fact, many people think twice when they hear "old wives tales" about snakes, and no longer judge snakes with suspicion, superstition, and dislike. As the saying goes, "ignorance is the root of all evil", and to change one's feelings from fear to curiosity, and from dislike to admiration, will open up new doors in man's relationship with this amazing reptile — the snake.

worth reading

The Dog Crisis
By: Iris Nowell
New York: St. Martin's Press
1978: $8.95

This book is on a subject about which you will hear more and more, viz., the uncontrolled pet population. Undoubtedly we do have a problem created chiefly by irresponsible pet ownership. The impact of the author's arguments is so beclouded by her bitter prejudices she has in this reviewer's estimation written a book of limited value. Her lurid chapter on zoonoses (diseases transmitted to humans from animals) can be questioned as far as accuracy is concerned. The one disease of which she writes most in the chapter is transmitted from **cats** not dogs and is confined for the major part to tropical countries.

She has no love for veterinarians nor pet food manufacturers nor people who anthropomorphize their pets (included in this dislike would be all the great English literature such as Dr. Doolittle, Winnie-the-Pooh, The Wind in the Willows, all of Beatrix Potter and of course that arch-fiend, Walt Disney, whose films are "gaucheries of exaggeration and deception.")

She does not believe in the efficacy of Spay and Neuter Clinics paid for by taxpayers. She feels that pet ownership should be limited, that all dogs should be spayed or neutered except those of licensed breeders, that the pet industry should be taxed, that there should be alternatives to the use of good protein being fed to pets while starvation exists in other parts of the world (interesting that you see more miserable roaming pet dogs in Central and South America where starvation is rampant), that the ownership of large dogs should be discouraged, that advertising must show small breed dogs on leashes with tags and ABOVE ALL no human behavior be attached to pet behavior.

Despite all this there is a modicum of truth in her distress. I really don't think the world is being destroyed by dog feces or urine but it is a fact that much grief and irritation could be avoided if pet owners were more aware of their responsibilities. If the author had controlled her personal prejudices a little and been more careful with her facts, this would have been a thought provoking and timely book.

Animals Tame and Wild
Compiled by: Gilbert & John Phelps
New York: Sterling Publishing Co.
1979: $14.95

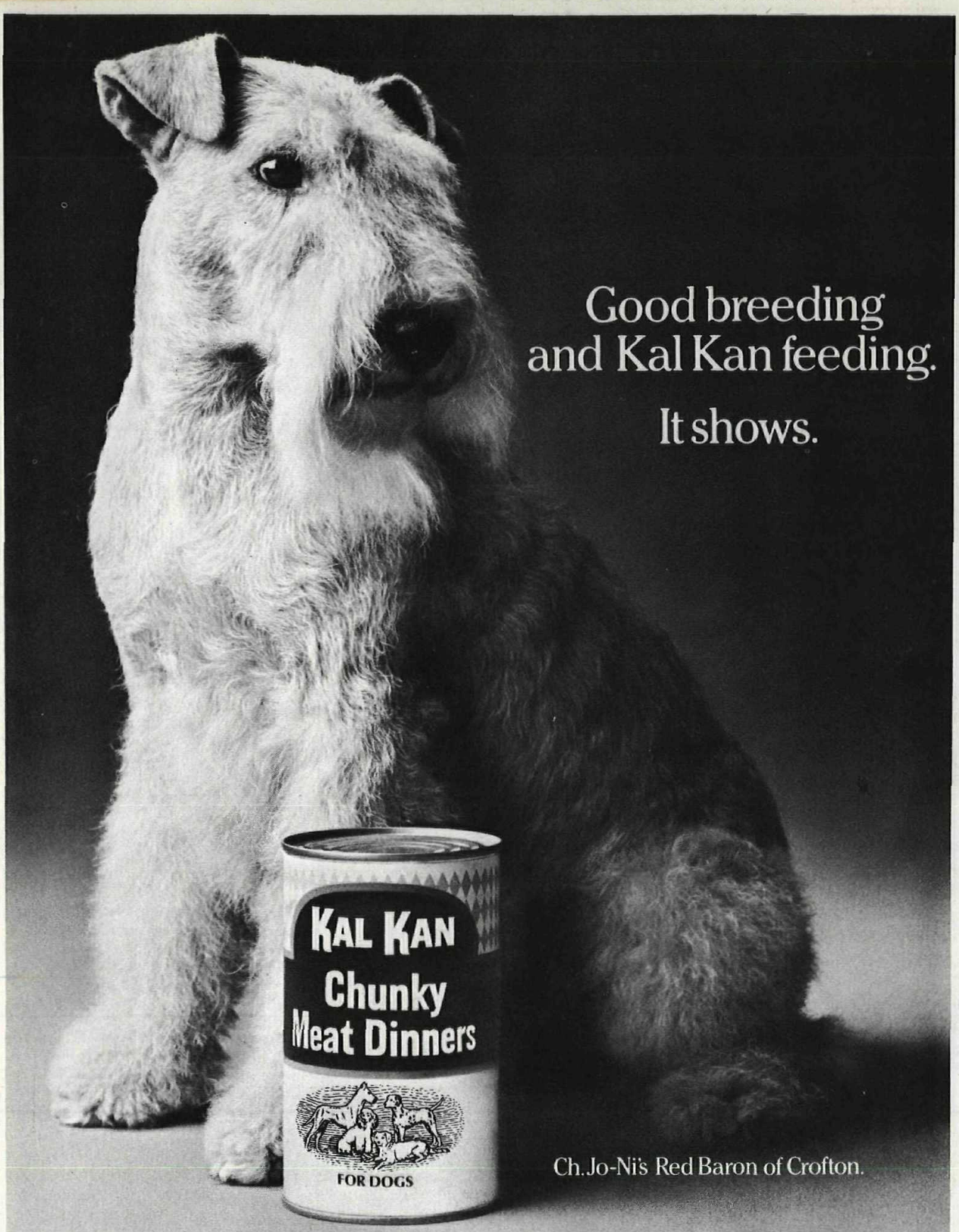
Excellent compilation including Philippe Cousteau, James Herriot, Charles Darwin, James Michener, Joy Adamson and many others. Lots of good reading from hilarious to pathetic. Nice art work in color and black and white. This would be a good gift idea for any animal lover on your list.

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

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

The Intelligent Cat
By: Grace Pond & Angela Sayer
New York: The Dial Press
1978: $5.95

Written by two English cat breeders, this is a comprehensive survey of the history, pedigreed types, physiology and personality of the cat. The book is designed for the cat fancier, but any cat owner will derive considerable pleasure (and worthwhile information) from it. There is one fascinating chapter on how to test your cat's IQ!



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