TROUT AND SALMON

Editorial offices: *'Trout and Salmon', East Midland Allied Press, 21 Church Walk, Peterborough PE1 2TW. Telephone: 0733-63100.*

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teeth. Considering the trout in this particular water average 1¾ lb over the season and that 2-3 lb fish are run-of-the-mill, endurance against mauling is of some importance.

In waters where the fish run smaller I would not hesitate to use the samples having hen pheasant or bronze mallard barbules; they proved attractive enough but failed to absorb the punishment meted out particularly by the rainbows in the reservoir.

The favoured dressing is:

Hook: Size 12 standard.
Silk: Black
Ribbing thread: Brown (Trylko D85 or similar)
Body: Fifty-fifty mixture medium yellow/light olive seal-fur.
Wing cases: Bunch of dark fibres from the tip of a stoat's tail.
Hackle: Small cream shade of badger from throat of cockerel.

Wax the tying silk and wind it from the eye to near the hook bend. Tie in the ribbing thread and leave it hanging. Lay the bunch of stoat tail fibres along the top of the shank, fine points towards the eye. Bind them on with the tying silk and return silk to the bend. Dub on the body mixture in clockwise turns, making a fairly fat body, and secure the tying silk behind the eye. Wind the ribbing thread in anti-clockwise turns along the body, tie down with the tying silk, and snip off its end. Trim the body to shape with small scissors.

Bring the fur fibres tightly over the top of the shank towards the eye, trap them lightly with the silk and use a dubbing needle to arrange them in the desired position before securing them tightly with four or five turns of the tying silk. Place a drop of clear varnish on this joint then tie in the badger hackle behind the eye, using two turns only. Whip finish in the normal manner.

I have not fished my new friend on a river, although I rather think that size 14 will be about right, but on stillwaters this pattern can be fished in almost any fashion so long as the retrieve is slow. It has done very well for me on a sink-tip line and a floating line, but best of all on a slow-sinker when the retrieve was punctuated by short sharp twitches.

I mostly fish it on a leader of 9-12 ft in company with one other artificial (the PT nymph being high on the list) and it has that quality possessed by only a few artificials of retaining its authority whether placed in bob or point position. While this authority tended to wane during July and August, its effectiveness was in no doubt throughout the rest of the season. In fact, every fish I landed in the final week came to the net by courtesy of my new friend.

A naturalist's notebook

NO GOOD WITHOUT A DOG

IN THE COURSE of a chat with a hill-shepherd I met with his dog high up on the Braes of Angus, he remarked that a shepherd wasn't much use without his dogs to help him. "On rough ground like this, ye canna herd sheep with a tractor."

The ancient Romans are said to have divided dogs into three classes — watchdogs, hunting-dogs and sheepdogs. But very often the dog on a hill-croft is all three.

He takes his place as guardian of the house, cocking an ear at any strange step and interviewing all visitors. Then he will hunt down vermin such as foxes and wildcats, if any of these cause trouble. With the sheep he is indispensable, for he will gather, drive and pen sheep as required.

This shepherd told me that most dogs have a notion of wearing (or gathering) sheep by going

round them — just as wolves do before they attack.

I noticed that when either of his dogs did wrong, it got to know it full well. But when the job was well done, the shepherd never forgot to give the dog a word or a clap. The attachment of the dog for the man was inviolable.

I went on to fish the upper pools of a hill-burn, feeling the better of my chat. It is always good to talk with men who work outdoors.

Colin Gibson

JOHN POOLE

My friend, the Boatman

ONE OF LIFE's more pleasant surprises is surely the sudden blossoming of a brand-new friendship — not a mere passing acquaintance but a solid, potentially permanent relationship having somewhere in its nature a high degree of respect. It may be with a person, or an animal or even a bird, but no matter what it is the pleasure remains unaffected.

In my case it happens to be with a bug — a plain, harmless water-bug that has succeeded in commanding my admiration solely because of the benefits I receive from it. And if that sounds outrageously selfish, let me try to explain.

At the start of last season I was habitually poking a dubbing needle into the stomach contents of many of the trout I landed from our local reservoir, not to mention a number caught by other anglers. Invariably among the unidentifiable morsels were the remnants of a hard-backed half-inch-long creature with a blackish mottled back. These remnants were never fresh enough to be identified but they could have been the remains of a water-bug, a beetle, a corixid, or a snail. The matter was not considered important enough at the time to merit further investigation as the main portion of the stomach-contents of the trout regularly turned out to be black and brown midge pupae, bloodworms, and slimy concentrations of daphnia, so everyone was doing nicely with buzzers.

Seldom more than one — and at most two — of these hard-backed creatures was found in any one stomach, but they were appearing so frequently I thought it worth while dressing a few beetle-type patterns and trying them out. By the end of May I had tied and fished a few repulsive-looking bugs with no success at all. Then the sudden appearance of large groups of sailor beetles around the margins, followed by smaller groups of soldier beetles and an unprecedented host of ladybirds (mostly three-spot), prompted me to try a few imitations of these with fair success. However, the mystery bug, much to my annoyance, continued to make regular post-mortem appearances, and I finally decided it had to be a species of corixid.

This is one of two of John Poole's articles held at the time of his death in April. The second will be published next month.

I had fished corixid patterns before but in a disinterested manner. The only one which I could recall having justified its existence was one based on a Cliff Henry dressing using black squirrel-tail fibres for the wing cases. It took some fish but was never in danger of setting the heather ablaze.

Then I remembered having seen a few small groups of lesser water boatman near some weeds growing on the natural-bank area of our reservoir; they had appeared almost black along the back with an olive shade of underbelly segmented by faint yellow rings. The two thick swimming legs were darker than the four smaller ones — the latter's colour was more that of the body.

I was aware that some of the old dressings made use of bunches of barbules from grouse, woodcock, and similar feathers, to form the wing cases but to the best of my knowledge none made use of a hen pheasant or turkey tail, yet these were the first to occur to me.

Imitating the paddling legs posed a problem. If I used hen-feather barbules they might, underwater, cling to the body and possibly hide its attractive segmentation from the fish. If I used those from a cock they might prove too rigid to respond to induced movement.

In the end I decided against paddlers altogether and dressed a few experimental patterns using various mixtures of yellow, olive, white, and light green seal-fur for bodies. A few shades of yellow and brown coloured silks were selected and, for the wing cases, I pottered around with bunches of barbules from a hen pheasant tail, a bronze mallard feather, and fibres from a black squirrel tail and from the tip of a stoat tail. Each sample was given a small cockerel throat hackle from either a honey dun, badger, or dyed-olive cape; dressings were restricted to hook sizes 12 and 14.

The trout showed an immediate interest and within a week I felt I had found a new friend. Within a month I knew I had, and by then had picked out the dressing with the stoat-tail fibres as the star performer — on two criteria: attraction for the trout, and endurance against the effects of their

When Man's best friend bays at the moon, howling for hours in the night, driving sleepless neighbors to lawsuits, one has to stop and wonder: Why is the miserable cur equipped with this noisy peculiarity?

Smithsonian Jan. '91

By Raymond Coppinger and Mark Feinstein

One reason they bark is that they're in kennels — and there researchers set up a kennel to study them.

'Hark! Hark! The dogs do bark...' and bark and bark

If barking is an adaptive trait, honed by natural selection, it should have a purpose; a new theory says it's not and it doesn't

Our research lab sits at the top of a hill, back from the main road. It's hard to see from the bottom, but it's all too easy to hear: the lab is home to a dozen dogs. Dogs have many virtues—they are pets, working animals, and to us, a study in behavior and evolution. But there's no getting around the fact that they can be infernally noisy. Day and night, dogs growl, howl, whine, whimper and woof. But more than anything, dogs bark. Barking is loud, noisy, repetitive, easy to locate and hard to ignore. And it can take up a sizable portion of the animal's life. Out in a field, on a cold Minnesota night, we listened to a livestock-guarding dog bark continuously for seven hours. Such an Olympian vocal feat is neither unusual nor, we suspect, record-breaking. Animal behaviorist John Paul Scott once clocked a cocker spaniel that barked 907 times in a ten-minute period. Even a single dog, barking for hours in the night, can drive sleepless neighbors to lawsuits. At their worst, when whole neighborhoods of dogs bark in raucous unison, they can become an official public health problem. Some communities are trying to bring barking under governmental control (along with biting, leash and pooper-scooper laws), and many an entrepreneur has made a bundle selling antibark collars, or sound-activated sprinkler systems designed to hose down a kennel of barking dogs. A television interviewer once asked B. F. Skinner, the behaviorist psychologist, if there was something he couldn't train a dog to do. After a moment's reflection, Skinner responded that it would be nearly impossible to stop a habitual behavior—like barking.

Barking has a long association with the American auditory landscape. In his colorful book *Dogs on the Frontier*, Western historian John Baur devoted many pages simply to descriptions of canine noise in early Western towns. Wrote George Rutledge Gibson, a soldier stationed in Santa Fe during the Mexican War, "If ever the canine species infested a place, they do this. When we first reached here, they literally had possession of the streets, the plaza and the suburbs, and enough can still be found to make a respectable dog town. . . . The whole valley for miles is made to ring with their yelps as far as can be heard, first one commencing below and then another above town, all between answering and keeping up a perpetual bark from sundown to sunrise."

In the 1880s, cities such as Los Angeles suffered alike from noisy plagues of dogs. A travel writer remarked that dogs did "their level best to excel in exercising their vocal organs. . . . The air is filled with the music, and sleep is driven to the mountains, or out to sea."

The dog populations of modern American cities, and attendant noise pollution, can be just as impressive

and probably just as distressing (though we are more inclined to deal with them by legislation than extermination, a favored technique on the frontier, according to Baur). In a 1973 study of stray dogs in Baltimore, ethologist Alan Beck estimated that the city, with a human population at that time of just under a million, also was home to more than 125,000 dogs—some 43,000 of them "free-ranging." Beck wrote that "in a city filled with unpredictable and uncontrollable noises, dog barking is yet another potential for lowering the quality of life for the urban dweller."

Some 52 million barking dogs are now resident in the United States. Perhaps it's the ubiquity of dogs and their vocalizations, or our weary resignation in the face of them ("Put one ear on your pillow, stick your finger in the other, and hum!" is our neighbor's advice to his wife), but people often find it hard to imagine that barking could be the object of serious scientific research. In fact, animal behaviorists and other scientists have had relatively little to say about dog barking; those who do think about it don't offer much in the way of explanation regarding its copiousness. Once the simple question is broached, however, it turns out to pose a tangle of intriguing problems for the student of animal behavior and evolution.

Consider, for instance, the fact that the domestic dog and the wolf are genetically quite similar. They can interbreed with one another and produce viable, fertile offspring. When scientists look at the basic protein structures of these animals, at their blood or their genes, it is difficult to distinguish between wolves and dogs. Coyotes, for that matter, are only marginally different from their canid sibling species. The three animals have remarkably similar basic morphologies, or body shapes. But when it comes to their vocal behavior, there are striking differences. The three, not surprisingly, have a common vocal repertoire: they howl, growl, snarl and whine—and they can bark. But there the similarity stops.

While the bark is the omnipresent hallmark of the domestic dog, *Canis familiaris*, the coyote and wolf produce it only rarely. In one study, biologist Ronald Schassburger found that, of the 3,256 vocalizations made by captive wolves (*Canis lupus*), a scant 2.5 percent were barks. And even when wild canids do bark, the form of this vocal behavior differs. Where dogs bark in long, rhythmic stanzas, adult wolf and coyote barks tend to be brief and isolated. Wolf pups, on the other hand, will bark repetitively, but no wild canid, we would venture to say, has ever barked for seven hours, or at the rate of more than a bark a second.

The howling of the coyote can be heard long into the night in many places in the American West (and increasingly in the Northeast as well, where a coyotelike canid is becoming prevalent). Thomas Say, a naturalist on explorer Stephen Long's expedition to the Rocky Mountains in 1820, gave the coyote its scientific name, *Canis latrans* (the "barking, howling canid") presumably because of its distinctive and pervasive sound. Coyotes certainly can bark, but Say's nomenclature probably refers more to the high-pitched yips that accompany coyote howling than to doglike barking. When we raised coyotes from puppyhood along with dogs in our lab, the coyotes remained silent and wary even when their kennelmates joined in frenzied, raucous bouts of group barking.

Modern wild dogs (including the Australian dingo, the New Guinea singing dog, the Asian pariah dog and the "barkless" basenji) are howlers that can bark but rarely do so. Unlike wolves and coyotes, our captive New Guinea singing dog *will* join in the noisemaking with barking kennel-

Biologist Raymond Coppinger and linguist Mark Feinstein are on the faculty of Hampshire College, Amherst, Massachusetts.

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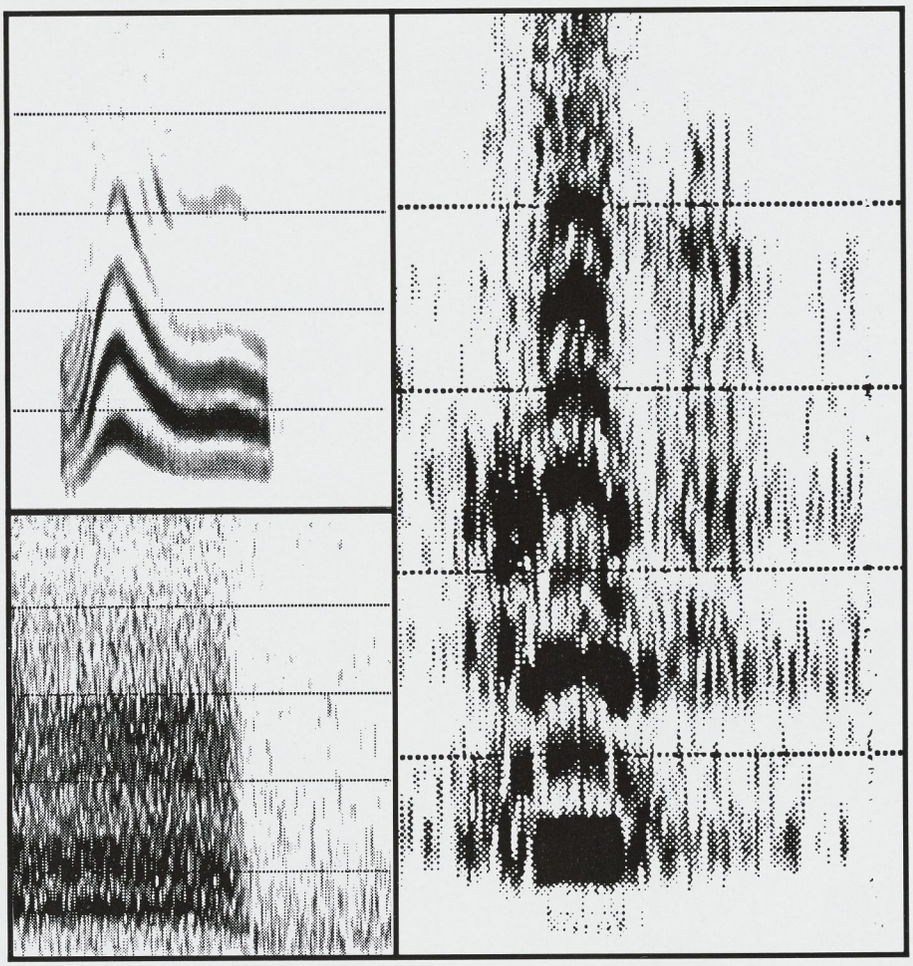

Sound spectrograms of dog vocalizations show rise and fall of a tonal whine or distress call (top left) made by an infant dog, and the noisy growl (bottom left) that usually emerges in an older pup. The bark of a mature dog (right) shows a mixture of aggressive noise and appeasing tones, a call that is found in the wild more frequently in juvenile canids.

mates—but when it does, it produces melodic, yodeling howls rather than characteristic dog barks.

The wolf is very likely the ancestor of the modern domestic dog, although all the evidence is not yet in. But whether the ancestor was a wolf or some other ancient doglike animal, we can surmise with some certainty that the dog's evolutionary precursors did not bark much. So something special must have happened in the course of the dog's evolution to make it such a prodigious barker.

The classical view of evolution is that animals are shaped by natural selection. Small genetic variations are the raw material on which the evolutionary process operates. Selection gradually favors those traits that contribute to the survival of an individual: animals exhibiting such traits will have greater reproductive success than those that do not, and the genes that give rise to the advantageous trait will be passed on in succeeding generations. No matter how complex or how marvelous an animal may appear to us, the conventional view might lead one to expect that each new trait plays an adaptive role in the life of the animal. Whatever body part or behavior we look at—the mammalian eye, the human brain, the hunting patterns of the wolf or the barking of dogs—we are tempted to look for adaptive significance. But our investigations of vocalization in the canid family lead us to believe that evolutionary mechanisms other than direct selection and adaptation are needed to explain the barking behavior of the dog.

A simple selectionist-adaptationist story might begin with the assumption that early humans brought wild canids—wolf pups, probably—into their homes. The most tractable, the least prone to prey on and kill other animals (or eat the baby) were allowed to reproduce, the others killed or let go. But for what reason? There weren't other domesticated animals around in the early Mesolithic period (some 10,000 years ago, when the first skeletal remains of dogs are found in sites of human habitation), so it isn't likely that wolves were tamed to protect or herd livestock.

Alternatively, researchers surmise that wolves might have been brought into villages and homes for help in hunting. Perhaps, some hypothesize, they were bred to provide protection from enemies and used as "canine burglar alarms," as zoologist Desmond Morris put it. But we think there is really very little evidence for any of these accounts of the evolution of the dog.

Most dogs, when you come down to it, can be miserable excuses for an alarm system. Imagine paying thousands of dollars for a high-tech home security system that automatically calls the police every time a car (especially your own!) pulls into the driveway, or that fires off, at unpredictable moments, a dozen times a night—when the moon is bright, when the wind picks up, when a truck rumbles by. It just doesn't make sense to us that people would have painstakingly kept and bred potentially dangerous wolves, so close to hearth and home, just to produce a "dog-that-cries-wolf."

Early preagriculturalists simply had no experience with selective breeding. It stretches the imagination to think that our ancestors began their experiment in domestication by intentionally bringing wolves into their camps and villages. Today when humans interact with wolves, just keeping them around requires something our early ancestors lacked—fences. The most plausible explanation, we believe, is

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that humans had little to do—at least directly—with the process. Early "dogs," we suspect, were scavengers that hung around human habitations, eating human waste products. It is just as likely that humans took equal advantage of the situation, eating the surplus dogs—a situation still seen in parts of the world today. In other words, we think that the wild ancestor of the dog may have largely domesticated itself, entering into a mutually beneficial symbiosis with humans—and is not a product of conscious human selection.

Animal calls typically play a straightforward role in the life of an organism, conveying information about its internal state or triggering specific responses in a hearer. Consider the low, noisy canid growl. You don't need a PhD to understand that the growl is an aggressive signal. Nor is anyone likely to mistake the underlying motivation of a whining, whimpering dog or wolf—here is an animal in some kind of distress. These are animal signals as the popular conception of a "language" would expect them to be: one "word," one meaning, like a simple dictionary. It is not difficult to see how natural selection might operate to develop this kind of signaling behavior. But the dog bark appears in a crazy quilt of contexts, and its basic meaning, if any, is far from clear.

Consider the extraordinary range of commonsense explanations of barking that are offered even by careful observers of dogs. As we've seen, there's the alarm function: the bark is purported to mean, as Morris puts it, that "someone is approaching the gates. . . . The alarm does not yet tell us whether the arrivals are friends or foes, but it ensures that the necessary precautions will be taken." Robert Ardrey claims in his book *The Territorial Imperative* that dogs bark for the same reason humans build fences: the animal is marking and defining its space. Others assert that the bark is a social call—"I'm here!"

The functions abound. A dog barks when it wants to be fed, or let in and out of the house. One dog owner we know claims his dog barks *only* when the "damned neighbor's dogs start yapping." Others have noticed that their dogs bark while playing. And finally, there is the testimony of an old New Englander who hunts rabbits with beagles. "Why do your dogs bark, Rob?" After some reflection, he responds, "Well, just for the hell of it, I suppose."

In short, dog barking presents quite a puzzle—if we think of it as part of an efficient communication system designed by natural selection. When an animal goes to the trouble of expending energy to make a sound, many biologists assume that it must be a signal, an element of a communication system that conveys information

benefiting both the sender and the receiver. In order for a communication system to work, both sending and receiving animals have to "understand" the meaning of the signal.

We don't expect these signals to be wildly ambiguous. It's true that, in some animals, the same signal can have very different functions in differing contexts. When male birds sing, their song appears to have a territory-marking function for other male birds, warning them away. But it also serves to attract female mates, and to maintain the pair-bond relationship. Barking could be a complex example of this kind of context-dependent behavior. But many dogs bark in virtually *every* behavioral context. Natural selection would have to have endowed dogs with an extraordinarily subtle and powerful system of context-interpretation for them to be able to derive so many distinct meanings from a single signal.

This all presumes, of course, that barking is indeed an adaptive signal that was honed by natural selection. But to us dog barking does *not* appear to be communicative: it may not "mean" anything at all. Recall our livestock-guarding dog in Minnesota, isolated at night in a field, that barked continuously for seven hours. There wasn't another dog in sight or earshot for miles around. Certainly no dog or human or other animal responded vocally. There was no sign of predators. Just who or what was receiving this signal? In what sense could it have a "communicative" value? And what selective advantage is there that would drive the dog to pursue such energy-wasting behavior?

Even the acoustic characteristics of the dog bark are something of a mystery from the standpoint of natural selection. The physical properties of vocal signals are often directly related to their function. In many species of birds, for instance, alarm calls given at the approach of flying predators have sound characteristics that are very difficult to locate. You'd expect natural selection to invent a signal that's hard to find; it gets the message across while minimizing danger to the sender. Biologist Eugene Morton at the Smithsonian's National Zoo has proposed some general principles governing the sound-shape of signals in birds and mammals. He argues that vocal signals fall into two classes. Noisy, low-pitched signals convey aggression, hostility or dominance ("This is my bone—go away!"). They cause the receiver to withdraw. By contrast, higher-pitched, tonal signals convey appeasement and submission ("Don't hurt me!") and solicit care ("Mom, I'm lost—come and get me!"). Such signals encourage approach.

To understand how such signals operate, the mammalian reader need only conduct a little thought-experi-

ment. Imagine that you are standing in front of a cave. You hear a rasping, low growl emanating from the dark. Could be a large bear. Do you want to go in to check things out? But suppose instead you hear a high, melodic, piping sound, not unlike the whimpering of a baby (human or otherwise). A sound like this is likely to tug at your humanitarian heartstrings and move you to go inside to see what is amiss.

Morton thinks that these two classes of signals evolved in the mammals precisely because low, noisy signals are indicative of large, adult animals that may be dangerous or competitive, whereas high, tonal signals suggest small, inoffensive, young animals. That is the reason, perhaps, that some of them seem to be so transparent in meaning to humans, who—mammals that we are—appear to share Morton's "motivational-structural rules."

Why, then, does the meaning of the bark seem so opaque? Barks are not only noisy, they also have a tonal component that is produced by the regular, periodic vibration of the dog's vocal cords. This tone appears in a sound spectrogram as a regular pattern of energy, often with a clear pattern of harmonics, or overtones. Noisy signals, by contrast, exhibit a scattershot, apparently random pattern of energy at many frequencies (see diagrams, page 122). The bark generally has a complex character: an initial period of noise, followed by a tonal portion into which the noise may persist. Furthermore, the pitch of the bark's tone—the rate at which the vocal cords vibrate—can vary greatly. Some dogs have low barks, while others' are high and yelping. Still other dogs have barks with contoured pitches, rising and falling. It's no wonder, then, that dog barks are hard to understand. To a mammalian listener (human or wild animal) a repetitive dog bark can seem to say, "Goawaycomehere! Goawaycomehere! Goawaycomehere!"

Morton has suggested that "mixed" vocalizations like the bark arise from indecision. The animal doesn't know precisely how to act—in effect, it doesn't know whether it is coming or going. It may not seem too surprising that an animal finds itself in this state, from time to time. Even the most highly adapted organism is likely, on occasion, to fail to be able to apply its usual behavioral resources to meet a particular challenge. Thus, one of the few times we've heard wolves bark was near the end of an exhausting but not yet conclusive dominance fight. Normally, an adult wolf has a highly effective set of behaviors when it goes into such a fight: it knows when to assert itself, when to back off, how aggressively to bite. It's plausible to think that the animal might be in a state of temporary indecision when these normal behaviors fail to accomplish a successful result.

But the dog appears, in this view, to exist in a virtually perpetual state of indecision—unable to cope with even the smallest changes and challenges in its environment. What kind of evolutionary change driven by the selective forces of normal Darwinian evolution could account for such a seemingly maladapted animal?

It is not easy for biologists to view the processes of evolution close up, on a time scale that allows us to gain insight. But occasionally, an experiment with artificial selection will provide a useful picture of what may have occurred in nature. One landmark experiment of this kind has actually

After generations of mating tractable foxes, the result was a tame "dog-fox."

been carried out with wild canids—foxes—and we think it may provide some clues to the mystery of barking. Indeed, this largely unheralded experiment might well be regarded as one of the century's most intriguing systematic investigations of the nature of evolutionary processes.

About 30 years ago, a group of Soviet biologists, led by the late Dmitry K. Belyaev at the Institute of Cytology and Genetics at Novosibirsk in Siberia, were raising and studying the silver fox, an animal that is farmed for its fur. Wild foxes are not easy animals to handle down on the farm. They are aggressive, tend to avoid human contact and are likely to try to escape from captivity. These are tendencies that an efficient fox farmer might well want to alter. But conventional methods of training and behavioral management do not seem to do the trick: you can't tame a normal fox simply by changing its environment. Belyaev's group instead decided to manipulate the genetic characteristics of the fox in an attempt to breed some of these problems out of their animals.

Transformed fox approaches humans now, rather than fleeing from them.

To do so, they selected those animals that exhibited some docility in their interaction with humans, breeding the tamest foxes to each other. After about 20 generations (about two decades, a remarkably brief time in normal evolutionary terms), Belyaev and his coworkers found that they had created a new animal. The transformed fox now approached humans rather than fleeing from them, and greeted them with tail-wagging, face-sniffing and licking. But it was more than a docile silver fox—the animal had also changed physically. Some of Belyaev's foxes now sported floppy ears rather than the prick-ears of an adult fox. Rather than the single estrous cycle, the period of mating and reproduction typical of wild canids, Belyaev's animals went into heat twice a year—a characteristic of domestic dogs. They developed multicolored coats. In many ways, it looked as though Belyaev had evolved a "dog-fox." Not only did this new animal have the temperament, physiology and physical appearance of a domestic canid, but as Belyaev put it, "they even sound like dogs."

Why should this entire new package of traits—anatomical, physiological and behavioral—have emerged without direct selection for anything but tameness? The answer, we think, is that tameness is a general characteristic of juvenile animals. Canid pups (whether wolf, fox, coyote or dog) readily form social bonds, even with members of other species. They seek out contact and care, rather than withdrawing from it. And as we mentioned earlier, all wild canid pups are generally noisier than adults, and barking in pups is significantly more frequent than it is in adults. As the wild animal matures and develops normal adult behavior, it gradually loses these puppy characteristics. Growth patterns are under genetic control: as genes "turn on" in the course of development, and other genes "turn off," the organism changes.

These processes are determined by regulatory genes, which control the schedule of the organism's overall growth and the rate at which its individual parts grow.

Any change in the timing of these regulatory genes is referred to by biologists as heterochronic (which comes from the Greek *hetero-*, "different," and *chronos*, "time"). Heterochronic evolutionary mechanisms can speed up the rate at which an animal grows from newborn into adult, or slow down the rate, so much so that a heterochronically slowed animal may not attain its "normal" full adult form. When Belyaev went about selecting for tameness, we believe he was actually slowing down the fox's rate of development—altering the animal's rate of maturity so that, effectively, he kept his animals perpetually young. It is young animals that solicit care, that bond to others around them, that don't exhibit the typical adult's propensities for aggressive defense of territory or its claim on dominance in a social hierarchy, that are not too touchy about interacting with members of another species.

From this point of view, we can think of Belyaev's dog-fox—and the domestic dog in general—as an animal stuck in a middle ground between infancy and wild adulthood. It retains some juvenile characteristics even as it becomes sexually mature (an altered pattern of sexual maturity, to be sure, since the dog-foxes come into heat more often), and it fails to attain, or only partially develops, other behavioral traits that would emerge in the normal life of an adult fox. Belyaev, of course, induced this kind of heterochronic change experimentally, although he was conscious of selecting only for tameness.

Earlier, we suggested that humans were probably not direct, conscious agents of the dog's domestication. But "self-selection" for tameness would just as readily have naturally produced an animal well suited to living as a scavenger and camp follower among human beings, because of a general change leading to the "juvenilization" of growth patterns. Potential variability in shape and color, additional estrous cycles, increased juvenile vocal behavior—including barking—all these characteristics of the dog have simply emerged as part of the heterochronic bargain.

If the dog is an adolescent in a state of change—reproductively capable but not yet endowed with the full physical and psychological maturity of a "real" adult—we expect it to behave in ways that look maladaptive or nonfunctional. All mammals go through a period of growth and change that we are inclined to call a metamorphosis, a dramatic remodeling of the animal from a highly specialized and adapted infant into an equally (but differently) specialized adult. Heterochronic change—an example is selection for juvenile traits—can freeze the species in mid-metamorphosis, and this is precisely what we think happened in the evolution of the dog. Its capacities consist partly of leftovers from infancy, and partly of slowly developing adult traits—some of which will never fully emerge, as heterochronic retardation holds their onset at bay.

The dog, for instance, never develops all the normal adult maternal behaviors that we see in the wolf: the mother dog will nurse her pups, but it is not common for her to provide other food for them. Nor does the dog develop the wild canid's full pattern of hunting and predatory behavior. Instead, it plays out bits and pieces of such behavior in what appears to us as random "play."

The extravagance and apparent meaninglessness of dog barking are, we think, simple consequences of the fact that the dog remains a metamorphic adolescent for life. Wolf, coyote and dog pups alike exhibit recognizable barks by the time they are a month or so old. The infant pup's vocal signals are overwhelmingly tonal—whines and whimpers of alarm

and distress. As the animal matures, these calls recede and are replaced by increasingly frequent noisy adult signals like growls. But the metamorphosing canid, in very much the same way that it organizes bits and pieces of waning infant behavior and growing adult behavior together into play, tends to mix together its infant tonal and adult noisy behaviors. The result, arising from no particular adaptive need and serving no specific function, is the bark.

We think that when dogs bark they are effectively doing the same kind of thing they do when they chase balls or their own tails. These are all behaviors that serve no real function in the animal's life, but that it nevertheless is likely to repeat over and over and over—byproducts of a heterochronic change. Dogs were no more selected to bark than they were to chew on an old slipper. That's not to say, however, that these characteristics brought about by juvenilization might not end up serving a purpose in the animal's life, so we think that Eugene Morton is correct in claiming that vocalizations like barking are motivated by indecision. Given their acoustic nature, sounds like barks *should* be confusing to mammals. It's plausible that the ability to confuse and to stave off conflict would fortuitously turn out to be of benefit to a maladapted, juvenilized animal.

And dogs may *learn* to bark, adapting this initially functionless behavior to meet new problems in life for which natural selection has provided no stereotyped signal—for example, when they want to be let into or out of the house, or when they want food or just some attention. Indeed, juvenile animals generally tend to be better learners than adults.

But in our view, dogs don't bark because human beings bred them to. Nor did natural selection specifically shape the dog to be a barker. Barking in dogs, we think, simply came along as part of a whole package of changes wrought by a genetic alteration in the timing of the life cycle of the ancestral canid. Stuck in adolescence, the dog barks so much because barking is what a *juvenile* canid does. The old New England farmer walking up the road with his beagles may have come closest to the truth when he concluded that dogs bark "just for the hell of it."

Free to roam about, a tame fox peers through window of the Institute of Cytology and Genetics, in Siberia.

Book reviews

Living at the End of Time
John Hanson Mitchell
Houghton Mifflin, $19.95

"O solitude! . . . I never triumph so as when I have the least success in my neighbor's eyes." So wrote Henry David Thoreau, after moving to the rustic cabin he had built in the Massachusetts woods near Concord.

A little more than a century later, author and naturalist John Mitchell built his own cabin in Massachusetts. And, like Thoreau, he has written an engrossing memoir of the experience.

The similarities between Thoreau and Mitchell nearly end there. Young Henry was a lifelong "bachelor of thought and nature," according to his friend Ralph Waldo Emerson. Mitchell is a more convivial soul, motivated to try his back-to-nature experiment more by the exigencies of divorce and budget than a craving for solitude.

And where Thoreau built his rustic cabin in the deep woods by Walden Pond, Mitchell fashioned a homier, meadow's-edge shelter, with gewgaws and frills inspired by Victorian architect Andrew Jackson Downing's designs, and complete with insulation, antique organ and composting toilet.

The borders of Mitchell's domain are well defined here and eloquently drawn; he is in the midst of a rich and varied habitat frequented by coyotes, fox and deer, along with several bizarre and touching outcasts—among them a wispy elderly gardener, a stubborn homeless drunk, a foraging couple of war refugees, and a mysterious man of the wilds. And Mitchell is within a short walk of the Digital Equipment Corporation computer complex that represents the inexorable technical progress he variously admires and abhors.

He's even closer to the unspoken emotional pull of his former home, still occupied by his ex-wife and children. At one point Mitchell describes (without naming) Thoreau—and obliquely, himself—to a psychologist friend. "This poor guy has a serious character disorder," she responds, maybe "only a step away from psychotic." We, however, are more likely to see Mitchell as a man enjoying the winter of his content—"The wind shot at the eaves beyond the loft, limbs snapped and fell. . . . But I was happy." If not inclined to extend his experiment indefinitely, he is sufficiently comfortable with himself and his setting to consider the real and surreal world rather than his own psyche, or the unfamiliar business of getting by without most 20th-century comforts.

If Mitchell embarked with a "true Thoreauvian journey, an exploration of the private sea of being alone," in mind, he has brought back a very different memoir, an exploration of time and space, not mind and emotion.

This book abounds with eclectic observations and anecdotes, among them a midwinter getaway to visit the Puerto Rican villagers who live hard by the giant Arecibo observatory, people like Mitchell, clinging to traditions in a bewilderingly technological environment. He tells poetic stories of writer Lafcadio Hearn's fascination with the legends and landscape of Japan. Mitchell gives us as well a fascinating insight into Thoreau the inventor and businessman, drawn in parallel with the portrait of iconoclastic Digital founder and chief executive officer, Kenneth Olsen.

But *Living at the End of Time* draws its strength, as Mitchell appears to, from his peculiar, almost mystical ability to read the human effects, past and present, upon a landscape. Mitchell travels imaginatively in time, and so his thoughts and graceful writing are best applied to plumbing the historic depths of a single locale. Here we learn anew about Indian legends, ruined dwellings and abandoned gardens, all of which leave their mark on the land he calls home.

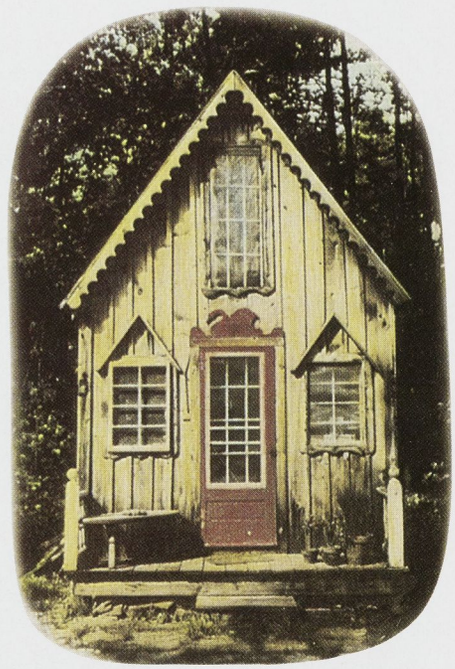
Mitchell put this talent to excellent effect once before, providing a 15,000-year account of life on and around the humpbacked ridge behind his cabin, in his captivating book *Ceremonial Time* (SMITHSONIAN, September 1984).

After reading *Ceremonial Time*, I visited that ridge and found to my disappointment that it seemed far less mysterious, less varied, less impressive than in Mitchell's writing. At first I ascribed the disappointment to the clash between reality and the imagination-charging power of Mitchell's writing. Only later did I realize that all that he sees on his ridge—the evidence of generations of lives led—is indeed there, invisible to less perceptive eyes than his.

While most of us live determinedly in the present, Mitchell wanders through it, putting the lie to his book's title. He is acutely aware of his gift. "Sometimes I have a feeling that this place, this actual spot where we are sitting is the center of the universe. It seems to me that anything can happen here—the beginning and the end . . ."

This time round it is the shadowy people as much as the place that haunt the reader long after the reading's done. Were I to encounter them, no doubt, I'd fail to draw, as Mitchell does, the meaning they all take from the land. Perhaps they don't even exist, as Mitchell concedes: "I believe that we are all reflections of one another, and that the people I knew that year, the experiences I had, and the landscape in which I lived were all in fact an extension of myself, an invented, imaginary world."

Whether invented or simply invisible to others, the people and places that



Mitchell's plans for Thoreauvian cabin gave way to "a lot of gingerbread trim."

The Beauty Contest

BY BILL TARRANT

Most of us have been guilty at one time or another. "Hey Hank," we've boasted, "I'm dating the Downtown Merchants Annual Pageant beauty queen."

And the reply comes, "Yeah, but can she cook?"

"Cook?" we stammer. "What's that got to do with anything?"

Dog men have not been immune to this syndrome. Many of us love a beauty contest. It matters not if the dog can't find his dinner pan; to look good is to be good.

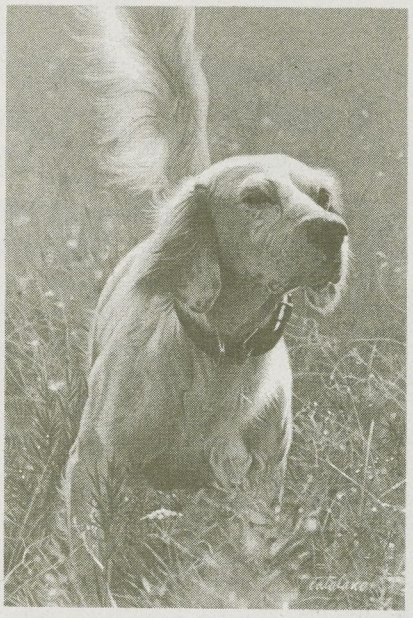
I've been re-reading a rare volume off my bookshelf, *The Setter*, written by Edward Laverack, London, 1872. English setter men and women will recognize this as one of two titan names in the breed. The other is Purcell Llewellin, to whom, incidentally, Laverack dedicated his book.

Laverack loved the English setter and dedicated his life to improving the breed for the gun. Yet I want you to browse with me as Laverack lists points of confirmation that a bona fide gun dog must have. I don't ask you to accompany me to poke fun at Laverack. Far from it. I want, instead, for you to recognize what people are saying when they talk of gun dogs; or more to the point, what *they're not saying*. And what they're not saying is really what the hunter must hear.

"I will commence with the head," writes Laverack, "which should be long and rather light, though not too much so. I do not like a heavy-headed or deep-flewed dog, it indicates sluggishness." Oh come now, Laverack. Like narrow-set eyes indicate a con artist? The head is merely the box that holds the computer called the brain. The brain is programmed in the womb (though it is modified by the environment). It's known that a hardhead throws hardheads. Blighters make blighters. We don't look at the shape of a dog's head to predict behavior. We look at what the mother and father do, and realize the percentages go with the beget doing likewise.

Laverack continues, "Nose large, moist, cold, and shining, slightly depressed in the centre, and expanded at the nostrils." Now what's all this got to do with anything? Can the dog smell? That's the question. Is he biddable enough to learn how to use his nose? See what I mean? Beware of fancy talk. Look for facts, not adjectives.

Laverack then explains, "Eyes



Illustrated by Sal Catalano

When assessing a dog, bear in mind that beauty is only skin deep.

bright, large, full, mild, and intelligent, and free from rheum or discharge, in colour dark hazel . . ." Laverack didn't know it, but he hit upon something here. Dark eyes are the result of pigmentation. And there is a direct relationship between eye color and eyelid color in dogs; matter of fact, geneticists aren't yet sure if these colors are determined by one set of genes or two. Anyway, we want a dark eyelid to protect the dog from skin sensitivity to the sun and even cancer.

Laverack goes on: "The ears set low on the head, and flat to the cheeks; they should be rather long than otherwise, not too pointed, and thin in the leather. A prick-eared dog is unsightly; it gives him a bad appearance . . . ."

Back to the beauty pageant. Did you check out your wife's ears before you married her? All that matters to a hunter about ears is this: Thick, heavy-furred, long-eared dogs are subject to heat in the ear canal, which can become irritated or even a haven for bacteria. The same dog might be hard of hearing; in effect he wears ear muffs. Now short-eared dogs do have some problems, but not connected with beauty. English pointers and Labrador retrievers, for example, don't have enough hair on their ears to insulate against fly bites, especially in the crease where the ear flops over. So you've got a kennel maintenance chore—you're forever putting gunk on the ears to ward off flies and heal the mess caused by them.

Plus, a long, thin ear will split on you. There's great force generated in a dog shaking his head; the ear whips until the edge splits, and these can be near impossible to heal during hunting season. And finally, Ben Lilly, a master of hounds for bears and mountain lions, observed that long-eared dogs had comparably long toenails that easily lamed the dog and made him unsuitable for hard hunting.

"The neck," says Laverack, "should be muscular and lean, slightly arched at the crest, and clean cut where it joins the head . . . ." The hunter's primary concern with a dog's neck is this: Does it hold the dog's head high enough to avoid cover? A high head keeps debris from invading the eyes and mouth, it lofts the nose above inhaled irritants, and it lets the dog's sighting be high enough so he can see deadfall to the ground for the fetch.

Laverack then writes, "The shoulders I consider one of the most important parts of the setter." He then goes on to say why—in terms of beauty. He makes the point that the back should be short. That's totally wrong. The longer the spine in a dog (or a horse), the more it can reach with its legs. It's got a longer wheelbase.

A short-coupled dog cannot extend its race. Its effort is up and down—not great reach and long pull.

But now Laverack hits the mark when he tells us, "Chest rather wide, and deep in the brisket; with good, round, widely-sprung ribs; a narrow-chested dog can never last . . . ." He finally said something. You want a deep heart-girth in the hunting dog so when he heats up he has room for his lungs and heart to expand. Laverack's right. A pigeon-chested dog will quit you. He has to. Either that or pass out.

Then Laverack goes to the hips, which he says should be " . . .well bent and ragged, the more bent the better; here is the propelling power." This "bent" aspect is most apparent in English pointers because they have little hair to hide their skeletal structure. What Laverack either did not note, or failed to mention,

A smallmouth will hold a rubber lure for some time before discovering it's not the real thing. It's softer than the natural, and for some reason the fish don't seem to know the difference. Not infrequently they'll grab it and run before dropping it and will even pick it up a second time if they're feeling foxy. In any event, wait for a one-two-three count before setting the hook.

When using real crayfish (I attach the hook to the underside of the bait with a small, brown rubberband), the angler who scores more often will wait until the initial run stops before setting the hook. The real crayfish with hard claws is usually swallowed tail first. If it's not grabbed this way, the fish will attempt to turn it around before swallowing. When it stops, reel up slowly until you feel resistance, and sock it to 'em!

Hard, crayfish-shaped lures with treble hooks attached must be set at the first real pull. The crafty smallmouth won't hang onto a hard lure very long. But work these lures the same way you would a soft artificial or real bait. Use a sinker (if you must) to sink the lure quickly, or if it's a crankbait type, cast it well beyond the hotspot to bump it among the right rocks seductively.

If you're correctly fishing with live crayfish or imitations, you're bound to lose some lures and hooks. For that reason, it's best to use line that you can break easily, but still be strong enough to set a hook with vigor. Four-pound line is too light, and anything heavier than 10 pound is counterproductive because it won't sink quickly enough, and it impedes giving good action to the lure. With live bait, sensitivity is lost with the heavier line. I'd choose 8-pound line with no swivels or other hardware fouling up the action.

Colors? The rule of thumb here is to select the rubber or hard lures that resemble the shade of the crayfish found in the target water. If you're not sure, check the general coloration of the water. If it's a bit cloudy and on the brownish side, that's going to be the color of the crayfish that live there. Ditto if the water favors olive or green. In clear water, I've found brownish red or a sort of rust shade to be the best. Crayfish come in a multitude of sizes, from less than an inch to jumbos of 6 inches and larger. Preferred smallmouth size is the one-gulp variety of about 2½ inches.

The ideal rod for crayfish casting is a 6½-foot spinning stick with a stiff, but sensitive, tip. Crayfish can also be fished with bait-casting gear or a fly rod. If you're using a fly rod, however, it's best to have a reel rigged with monofilament instead of heavy fly line, which would hamper good creeping action on the retrieve.

Every fishing rule can be broken or disproved on nearly any fishing trip, but for my money, I'll search out the shoreline or bottom structure that has an abundance of bushel-basket-size rocks. I know now that where I find such rocks, I'm also likely to find the best bass-catcher, bar none.

is the fact that the higher we move the hunting dog's tail forward, the longer we extend the loin, hip, and thigh muscles: drivers of the pelvic limbs. A high-tailed structure permits the back feet to reach farther and trail longer, making a greater arc of the wheel. Which we note when we say, "He's a roller."

The higher the tail, the more the "bent" hip shows. When the tail droops, the tail settles between the hips, the muscles relax, and the hip partially disappears.

Laverack then says the forearm should be " . . .big, very muscular; the elbow well let down . . . ." But he offers no reason for such an anatomy. What we need is a strong foreleg with all joints straight and sound. They are the shock absorbers and the hinges. If they're misaligned, they'll sore up and the dog will have to quit the hunt.

Laverack then mentions the feet, saying they should be " . . .very close and compact. The foot I prefer is the hare, or spoon-shaped one, which enables him to have free action on the pad or ball of the foot instead of the toes . . . ."

Sorry Laverack, we want just the opposite. A dog's got to have a good, tight, sound foot—that's for sure. But sprinters run on ball and toes. For a dog to run flat-footed would be for us to run in wooden clogs. Besides, a hunting dog's toes act as knobs. They dig and hold and push off.

Splayed toes are easily broken, snagged, and/or sprained. For the toes to spread is to expose the recesses and invite stones and thorns to lodge in the crevices. Consequently, Laverack should have said we want a high-toed foot.

A loose foot—as Laverack says to avoid, but does not say why—splats on impact, does not bounce, and therefore relays all force to ankles, knees, and hips (or shoulders). Dogs with such feet don't want to get out of the crate the second day of the hunt.

When Laverack arrives at the dog's tail he says, "The tail should be set high, in a line with the back: medium length, not curled or ropy, to be slightly curved or scimitar-shaped, but with no tendency to turn upwards; the flag or feather hanging in long pendant flakes." Laverack wants in a tail what a show girl wants in a feather boa. Flash.

While hunting in England I've been told the dog's tail should be a quarter past 9. In other words, as Laverack notes, straight out. Why? In Labs we know the otter tail is extended in water for a rudder. But the setter? Oh, he does use it to help turn, to be certain. But German shorthairs turn and they have a tail only 6 inches long.

But Laverack's not finished with the tail. He adds, "The feather should not commence at the root but slightly below, and increase in length to the middle, then gradually taper off towards the end . . . ." To which I ask, how many dog tails ever pointed a bird, or fetched it up? In other words, what difference does a tail make? Unless it's to slap away a fly or beat in a rhapsody of love for bird and handler.

And so it goes. Laverack waxed poetic about a picture in his head. But it's a bird in hand we want. So we wonder why the man never mentioned the need of a high bone balcony over the dog's eyes to knock away stubble. Or the fact that we want tight testicles so they won't sore up on the dog from rubbing stubble and briar all day and lessen his performance. Or why we want a cow-hocked dog so when those back legs spring they have a whip in them to give further thrust and increase stride. Or to note that cow-hocked dogs place their feet, on thrust, in the same (or nearby) spot, giving us a balanced runner. Who ever went anywhere running spraddle-legged?

I don't jump Laverack because he's not here to defend himself. To the contrary, I hold the man in high esteem. He pioneered where I now flounder. And let's hope a hundred years from now a later dog writer takes me equally to task. My interest is with you. Your decision is no better than the information on which it is based. You need facts, not poetry, to find a gun dog. And you need reasons, not adjectives, to make the pick. Sleep well, Laverack. And to you the hunter, Happy Trails.

Books & Comments

MULE DEER: How to Bring Home North America's Big Deer of the West. By Norm Nelson. 207 pps. Illustrated with photographs. Published by Stackpole Books, Cameron & Kelker Sts., P.O. Box 1831, Harrisburg, Pa. 17105. Hardcover, $16.95.

Yes, they are big. An economy-sized, slate-gray, square-as-a-Hereford mule deer buck with antler beams as thick as your wrist is something that will make you suck in your breath hard. Years ago, these deer were lacking in both intellect and suspicion, but that has changed, and today, a trophy-class mule deer is as paranoid and resourceful as any whitetail.

Thus, Norm Nelson's book. Norm started on whitetails in the early 1940's, and ten years later, started hunting the West. He has about as much experience, deerwise, as anyone breathing air, and I can say this because I've hunted with him twice, and both times have come up with mule deer that went on my wall.

His book, which is of modest size, bites off a lot of territory. In seventeen chapters, he covers everything from the natural history of this species to guns, hunting tactics, planning a trip, possible pitfalls, equipment, weather, field-dressing, you name it.

Mr. Nelson is an opinionated fellow. If something doesn't work, he will let you know in exceedingly plain English. For example, in the chapter on rifles, he deals with wood stocks thus: "Some gun gurus preach that barrels should be tightly bedded, with or without some mysterious shimmed pressure points determined by witchcraft and human sacrifice. Only a druid would put that much faith in wood stability. A tree trunk is a giant wick so permeable that the tree sucks water two hundred feet plus though that 'solid' wood."

Most of the mule-deer-hunting books I've read have been written by folks who were fine hunters and less than fine as writers. Norm Nelson is very good at both. The only complaint I have is the poor quality of the photos, for which Stackpole must take the blame. Speaking of photos, there is one of me on page 89, and yes, I really do look like that. No one said you had to be good looking in this business.—D.E.P.

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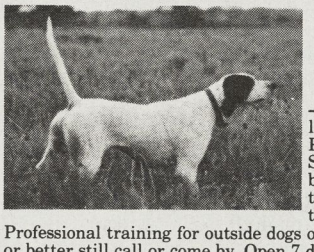

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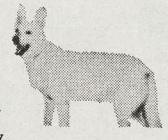

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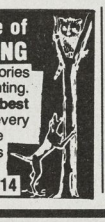

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A SORRY DOG OR A SOUTH WIND?

Your dog can only tell you what's written on the wind. Here's why he gets the message wrong

Art Flick

Do you remember the day you started out with your hounds on a rabbit hunt, full of anticipation, only to find the dog or dogs couldn't run a rabbit.

Sure you do, but you just figured they were having an off day, because you had previously taken a good number of bunnies ahead of them. You knew of other days too when their trailing wasn't up to snuff, and, except for being annoyed, you wondered what was the matter with them, and let it go at that. You never dreamed there could be a definite reason for it—a condition hounds (and other hunting dogs) could not cope with.

If you are a bird-dog man, how many times have you been afield when your dog's nose was anything but razor-sharp—went by birds it should have found, and on occasion, busted them.

This scenting phenomenon has always existed and always will under certain atmospheric conditions, and there just isn't a thing you or anyone else can do about it.

The next time this occurs, take note of the direction of the wind. I'll lay you odds it will be coming from the *south*. Just check it out and you will get a big surprise.

For many years, we ran a sportsman's hotel in New York's Catskill Mountains, catering primarily to trout fishermen and grouse hunters. We also had a few midwinter stalwarts who liked to hear the hounds give the snowshoe rabbits a chase. I'll admit there were not many of the latter, for it is kind of a rugged sport, standing around for who knows how long, trying to be in the right spot for a shot with the temperature dipping down into the teens.

I was a licensed guide, and about the only days I didn't hunt were those when the weather wasn't "fitten" or during the deer season when I wouldn't take a chance on my dogs, because of some of the screwball deer hunters we get in this part of the country.

I was fortunate enough to have owned more than my share of really top grouse and woodcock dogs, and of course I never had less than two fine beagles for white rabbit hunting.

The few occasions I ever had to apologize for them were those days when their noses just plain wouldn't work, and several years went by before I realized the reason for this. As often as not on such days I would keep my own council, and because we generally had sufficient grouse, we flushed enough to give us shooting without the help of the dogs. One thing in my favor was the fact that most hunters didn't expect to get very many points on grouse in a day. These game birds are notorious for not holding well for a dog, and it took really good ones to handle them.

When I finally stumbled onto the answer, I discovered something else. For a reason I can only assume, things did not work so badly in woodcock cover; I noticed that my setters would handle timberdoodles even with the wind in the south, so on such days, I'd always select the alders to hunt in. As a rule the ground was damp in those stands, and inasmuch as the dogs would occasionally lock up on a grouse there I could only assume that the damp soil in the alders gave them an assist. They never had much trouble with woodcock in such places.

Along with my setters, I always had at least a pair of working beagles, and because they hunted just about every day after the close of the deer season, when snowshoe rabbits were legal, they had plenty of work and were top-notch trailers.

White rabbits are not overly plentiful in this country, and it does not pay to fool around with dogs that are not good trailers and real "stickers." We rarely get shots at "strays" as they do, for example, in the Adirondacks and other sections, and it is not uncommon for good hounds to stay with the white ghosts for two or three hours if nobody is able to get a shot.

Yet those same dogs that will stay with a rabbit for hours without giving up were completely helpless on days when that south wind was blowing, and you would swear they didn't know how to run one.

One of the best examples I have ever seen was on a day when we were hunting on top of Hunter Mountain. It was not the most pleasant day in the world, overcast, with a threat of snow and a light wind out of the west —it always seems to blow on top of the mountains. Also, there were a few snow flurries now and then, to add to the three or four inches we had on the ground.

For a hound man, it was a wonderful day, as the dogs never ran better. We had music all day and managed to kill five white rabbits, which is a good day on our mountains.

At 3 p.m., I called the boys together, for it was quite a hike back to the car and about time we started in order to get to it before dark. Just about the

continued

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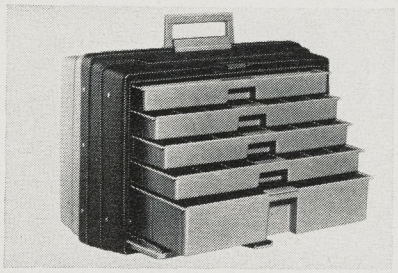

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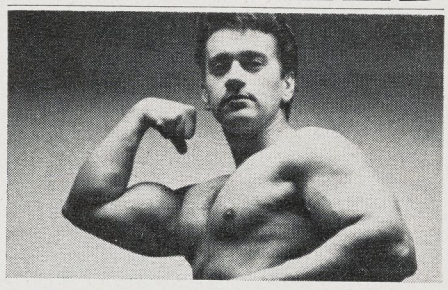

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time we started back, the wind had changed from west to south.

When we got almost all the way down, someone commented on the fact that it had warmed up and that the snow was starting to thaw; should it continue to thaw all night, he figured we should have a good morning with another good chase. But when I told him that if the wind stayed where it was we'd be lucky if we had any running at all, he thought I was kidding for he figured scenting conditions would be better for the dogs with the snow melting.

Sunday morning was as pretty a one as you could wish for, the sun was bright and we had melting snow.

We had a bit of trouble jumping the first hare, and when the dogs got on it you never saw three more surprised hunters in your life, for the dogs acted as though they had never run one in their lives. They would follow it for a short distance, make a loss, straighten it out only to lose it again. It was almost impossible to believe those were the same pair of beagles that had done such a fine job the previous day. Nobody had seen one of the white rascals, for the pups just could not push them around. It was an old story to me.

It seems to be the same with pointing dogs.

Hal Foster, the fine artist and creator of the comic strip "Prince Valiant," was at the house and booked to hunt with me on a Monday and Tuesday. He had a setter he had just purchased and was of course anxious to try him out. He had arrived on Saturday and Art, our younger son, was going to take him out on Sunday.

When I returned home from hunting, Junior was already back, and he told me they had a nice day and that Mr. Foster's dog had done very well. Art thought he really had a good one.

I looked Hal up and told him what Junior had said, and of course I congratulated him, for his luck in the past with dogs had been anything but good. Naturally, I was anxious to see him work.

Much to my disgust, I found that damnable south wind blowing the next morning.

I went into the dining room, and after the usual pleasantries Hal allowed it looked like a wonderful day.

"Yes," I said, "but don't look for any dog work today." A lot of kidding always went on with the gang, and he came back with, "Oh I know, you have the only good dogs around here, but because we are going to hunt my dog, there won't be any dog work."

When I told him why I had said what I did, he thought I was giving him the business and laughed it off.

Before the day was over, I really felt sorry for him, because the poor dog didn't do a thing as far as handling birds was concerned. He said, "Art, if you hadn't told me what you did this morning, I'd have shipped the dog back, figuring yesterday was an accident. Let's see what tomorrow brings forth."

Unfortunately, the Gentleman Upstairs had other ideas, and it was just more of the same. But at least Hal had the satisfaction of having had a witness to the dog's behavior and bird handling on Sunday. Incidentally, the dog turned out to be a good one.

Strangely enough, I have only run across one person who came up with the same answer to that odd situation.

Young Art was attending Forestry College at Syracuse University. One of his professors raised beagles as a hobby and had stumbled onto this strange fact as I had. He even went so far as to prepare and send out a questionnaire to beagle owners he knew to ascertain whether or not any of them had noticed that under certain wind conditions their hounds did not run well. All replied that they had, but never connected it with any specific condition.

I have sold quite a few dogs, both setters and beagles, and you can bet that after I knew the score I never took a potential buyer out to see how a dog worked if a south wind was blowing.

So, the next time your pup has a bad day, see if the fault doesn't lie with the wind rather than the dog. I'll give you odds it wasn't the pup, unless of course it was due to some physical condition. When you realize this, your reaction will probably be, "Well I'll be damned." ■ ■ ■

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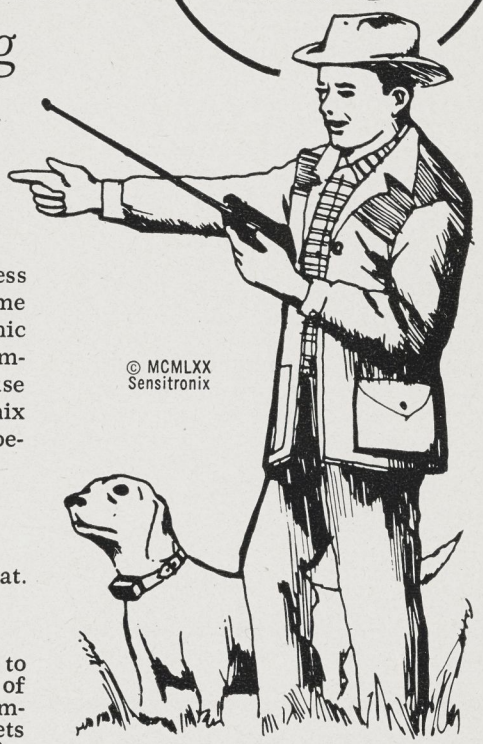

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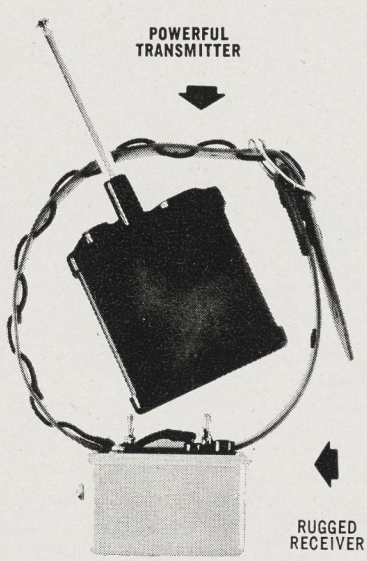

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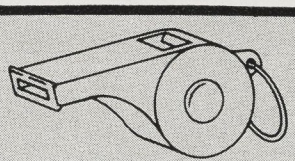

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JEROME B. ROBINSON

Gundogs

Beauty Is as Beauty Does

In architecture there is a rule that states form should follow function. This means that a building designed to function perfectly according to its intended use will automatically look correct and suitable. The same is true in the design of animals—those that function best do so because they have superior design quality.

Regardless of breed, there are certain functional requirements that must be met in order for a gundog to do its work properly; all gundogs must be designed to run with agility for long periods of time, for example. It is on the basis of their ability to fulfill these requirements that good gundogs are formed.

You might naturally assume that dog show standards would reflect this dependence of form upon function, and that dog show champions would be dogs that are designed to function well. Unfortunately, that is not the case. Over the years the fads and fashions that show dog fanciers have declared beautiful have too often been based upon what looks distinguished or glamorous, without regard for the form that permits the dog to function at its best.

And so today, among the sporting breeds, we have a wide difference in looks between "field" types and "show" types.

Consider for a moment the physical requirements that form a functional gundog. It must have the ability to run for long periods of time. This means that the dog must be short-coupled in the body and a bit leggy. The legs must be squarely set under all four corners, with powerful musculature and compact feet. The dog should move lightly on its feet and be deft and agile while running over broken terrain.

Generally, this would require that a dog be constructed efficiently, with no more size than is necessary to perform its functional tasks. In dog show circles, however, "bigger is better," and so we have dogs within the so-called sporting dog group that are too big and too clumsy to run gracefully or sustain their run for any length of time. And to these canines go the coveted trophies of the show bench.

A squarish muzzle may have more appeal to some people than a pointed one, but dog show fanciers have damaged the functionality of their dogs by breeding for long, overhanging dewlaps in an effort to square up the look of the muzzle. Long, overhanging dewlaps are heavy and pull down the dog's face muscles to create sagging eyelids, which gather seeds and debris when a dog is hunting fast through brush and dusty country. Furthermore, long dewlaps make the dog an inveterate slobberer.

What about coat? A hunting dog needs a coat that is impervious to weather, burrs, brambles and the abrasion of daily runs through heavy vegetation. Dogs with short, straight coats and woolly undercoats slip through cover without tangling and are well protected from the cold. Yet show dogs in many sporting breeds are glorified for having long, curly furnishings that amount to no more than burr traps in the field. These dogs must be clipped before they can function properly.

Dogs that run gracefully have straight, short backs, yet bench show dogs are shown with their hind feet set back in a stretch position. This tends to create a long, sloping back line and a tendency for some people to breed dogs that are longer-coupled than is functionally acceptable.

Dogs that run well have round, broad chests with plenty of lung room. Their chests are well up off the ground, making it easier for them to clear logs, stumps and rocks as they dash through rough terrain. On the bench, however, dog show honors go to individuals with deep, narrow chests that reach toward the ground—striking in profile, but nonfunctional in design. Dogs with extra-deep, narrow chests also seem prone to bloat, an affliction unheard of among dogs that are properly built for running.

Show dog fanciers also prefer long, narrow heads. Yet anyone choosing a dog for field training naturally chooses a pup with a square head that has "plenty of room for brains."

The sporting breeds were produced by man's experimentation with different combinations of canine genes. If you wanted a dog that would find and point gamebirds, you bred together dogs who were built to run gracefully and cover the ground, and possessed an exceptional bird-finding ability and a natural tendency to hesitate, or point, before diving in after the quarry. Refinements of color, size and shape came later through the selective processes of competition and practical use.

Eventually, through line breeding of exceptional individuals, a "breed" evolved that consistently produced individuals with the desired attributes and a certain standard appearance. With the establishment of a new breed, individual dogs had to meet certain conformation standards in order to be considered eligible for bench show honors.

Jerome B. Robinson

The field-type English setter above is a functional, efficient hunter.

continued

old catfish that the bib-overall boys know how to catch have grown big by displaying intelligent restraint. Or maybe they lose their taste for Catfish Charlie after reaching a certain age, like boys and bubble gum.

We were paddling along one afternoon when someone in a canoe ahead of ours saw a big catfish feeding along an overhung bank. They called us to the spot, and sure enough, there was a yellow cat at least three feet long wallowing along the bank. It was clearly visible in the silty water, and every so often its tail broke the surface as it grubbed for food. Sherry and I maneuvered to the bank, and she held on to a protruding root while I drifted a ball of Catfish Charlie back to the monster fish. Just as it reached the place where I had last seen the big cat, the bobber plunged under and I tightened up and set the hook.

But instead of the king of catfish, what rushed up and grabbed my bait was a two-pound blue cat—and in the resulting fracas he made so much commotion that the big fish disappeared and was not seen again.

One evening a strange thing happened. I had caught a blue cat of about a pound and a half, and thinking that it would be good for breakfast, I fastened the fish on a length of 8-pound-test line and left it tied to a stake at the water's edge. Next morning it was gone.

The line had been broken at the stake. There was no way the little fish could have broken it, so I presumed that a raccoon or an otter might have stolen the fish. But after looking around, I could find no tracks on the sandy beach.

On the last day of our trip we came upon three men who were "jug fishin' " for catfish. They had a johnboat full of plastic jugs to which were attached two-foot lines with hooks baited with live shiners. They'd run upriver, setting the baited jugs afloat, then cruise back down watching for jugs that were bobbing unnaturally and go scoop up their prizes.

"Gettin' any big ones?" I asked.

"Jest fishin' for eaters with small bait today," one fellow answered. "We'll go after bigger ones tonight."

"How do you get the big ones?" I asked.

"Use a live catfish 'bout a foot long," he said. "Jest let him swim on a short line close to the bank. Them big ol' cats cruise the banks at night. Small cats is what they eat, mostly. . . ."

Well, that explained the loss of my breakfast fish. I told the fellow what had happened.

He laughed. "Teach you not to leave yer breakfast swimmin' around," he said. "They's some mighty big cats along in here."

Martin Brown told me that a canoeist on an earlier Rio Grande trip hooked several catfish that were too big to land on a spinning rod with light line. "The fish would get out in the current and just hang out there," he said. "The guy kept breaking off fish until he ran out of line."

A look at the canyon walls gave me a good idea of the kind of retreats catfish used in the depths of the river. Limestone deposits dissolved by the water had left the canyons pocked with deep caves, and this dissolving action was continuing beneath the water's surface. A big cat had only to run into an underwater cave, and no amount of pulling would bring him out. Any line—no matter how heavy—would soon fray and part.

The magnificent canyon walls here rise to heights of more than 1000 feet above the river. Every so often, however, the walls recede, and you come across open box canyons in which grass and bushes grow. In all of these places we saw wild burros, cattle and horses that had apparently been swept in here from upstream on floodwaters and had lived for generations trapped in lush pastures from which there was no escape.

Coyote tracks marked every sandy swimming beach, and though we saw none of their tracks, cougars were there, too, for cougars are still numerous in these inaccessible canyons. One evening I heard a raucous sound in the distance. A few minutes later it was repeated, and this time there was no mistaking it. A wild turkey gobbler was shouting about his mating intent to all within hearing distance. We listened to him sounding off until dark, and his booming challenge at first light wakened us all the next morning.

For a full week we traveled down the Rio Grande one paddle stroke at a time. It is mostly a placid river, but before it ever gets boring you come upon another short, steep rapid that requires careful scouting. We lined through one booming boulder field and portaged around another, but all the other rapids were runable, and Martin's casual instructions were, as always, to the point.

"If you get hung on a rock, lean toward the rock," he said. "Water will build up under the canoe and help you get off. If you lean upstream away from the rock, you will bury the upstream gunwale, and the canoe will fill and may get wrapped around the rock. We try to avoid that."

Nobody dumped a canoe on our trip, but we were prepared had a mishap occurred. One of the crew stood below each rapid with a throw bag of rescue line, and we ran all whitewater wearing life jackets.

(Continued on page 140)

EDITORS AFIELD

The original standards of the sporting breeds guaranteed that show champions would exemplify the conformation that best suited each breed for its special use. But those standards were written many years ago. In the interim, dog show fanciers and judges alike have been seduced away from functional form by physical manifestations that may be eye-catching, but serve no useful purpose in the betterment of the breed. Each time a sporting breed's conformation standard has been changed to include a new "glamorous" look, the future usefulness of the breed has been subverted.

The prospective gundog buyer is faced with a real dilemma. On the one hand he is warned that big-circuit field trail champions produce offspring that may be too hot for him to handle, and on the other hand he learns that show stock may not be able to cut the mustard. All he wants is a dog that can do a fair job in the field and look good doing it, and be a lovable household campanion the rest of the time. Not much to ask, really. Form determined by function.

For information regarding breeders in your area who produce good-looking basic gundogs, I'd recommend contacting the following organizations:

National Shoot to Retrieve Assn., P.O. Box 31038, Indianapolis, IN 46231.

North American Versatile Hunting Dog Assn., 4302 Rt. 21, Marion, NY 14505.

North American Hunting Retriever Assn., P.O. Box 154, Swanton, VT 05488.

Hunting Retriever Club Inc., 100 East Killgore Rd., Kalamazoo, MI 49001.

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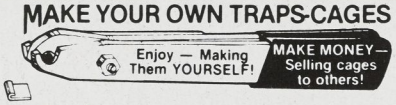

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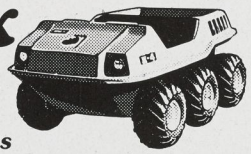

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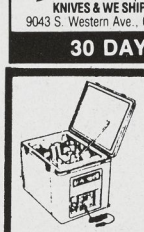

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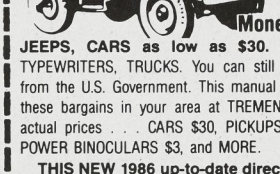

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How to obtain the bag limits of yesterday from the rabbits of today? Just remember that they're not where you used to find them—and if your dog can't root them out of the brush, jump right in.

By Dave Fisher

The rabbit blasted out from under the clump of vines. I barely had time to stick the barrel through a hole in the tangle and fire a quick shot. Fur flew in the air as the cottontail disappeared over a small rise.

I had just commented to my cousin and hunting partner, Bud Dye, that we hadn't jumped any rabbits ourselves; the dogs were doing all the work. The words were barely out of my mouth when the bunny shot out just inches from my feet.

Nothing disgusts me more than wounding a rabbit, or any game, and having it escape to die later. I hoped the dogs could track him down. We followed the dogs closely for 100 yards, thinking they would catch the rabbit quickly, but the barren rock and slate of the abandoned strip mine gave the dogs very little scent to work with.

The dogs clearly needed some help, so I scanned the area, trying to figure out where the rabbit might have fled. The strip mine was virtually clean of brush and grass. Another 100 yards to the left of the dogs was one small patch of vines. The thorny vine tangle was only the size of a table top and only one step put me in the middle of it. Instantly, the rabbit flushed out the other side and the 1100 came to my shoulder. At the sound of the shot, the rabbit tumbled end over end. This time he stayed put.

Besides Bud and a couple other friends, my companions during rabbit season are two or three good running beagles. But dogs, just like hunters, can have bad days and require some help from the hunter.

Most of the time the weather decides just how well beagles can trail their quarry. Without exception, wet or rainy days allow the beagle to use its nose most effectively. I believe that rain or snow keeps dust and pollen stuck to the ground, preventing the dog from sucking it up its nostrils. A scent trail also holds better on wet leaves and grass. And on rainy days, the rabbits will not go to holes as readily because many of them fill with water.

A few years ago, Matt Failoni and I were having a very good day rabbit hunting after several days of wet weather. We were heading back to the truck through a weed-choked field when a rabbit tore out in front of me. I shot twice and the rabbit rolled. The dogs immediately picked up the trail, but instead of stopping and barking where the rabbit should have been lying, they continued on through the field. Matt and I took up pursuit and soon came to a hole where the dogs had quieted.

The ground around the hole was soaked with water and I couldn't imagine that the rabbit had gone into it, but the dogs assured me. I took off my hunting coat and shoved my arm into the hole. To my surprise, my fingers latched on to the rabbit's back legs and I pulled him from the hole—still very much alive. The combination of wet weather, the dogs' trailing ability and my refusal to give up on a wounded rabbit worked. The dogs just needed a little help.

Dogs will usually have their toughest time late in the season. Morning frost holds rabbit scent so well that the beagles tend to cold trail rabbits that were active before dawn. The frost evaporates before noon, leaving bare frozen ground for the dogs to trail over. Even my best beagle, Berries, sometimes cold trails and loses many rabbits on hard frozen ground. These conditions make for the worst hunting days of the year.

Martin Keith and I explored another abandoned strip mine this past year during the late season. After a couple of good morning runs on which we had

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PHOTOGRAPH BY FRED AND DORA BURRIS

Old Ripper

The big black boar ran off four of Missus Ella's sows by breaking through the fence around her pig parlor. It was up to me to kill him, but seeing how he had attacked people already, I wasn't about to give him a chance to get at me with his tusks.

By Jack Wingate as told to John Phillips

I had just come back from the service in 1954. My wife was expecting our first baby, and I was running a general store on Highway 97 just outside of Bainbridge, Georgia. Hardly a day went by that someone didn't come in and tell tales of Old Ripper.

Old Ripper was a large black wild hog that lived in the nearby Fowltown Swamp. That hog tore up more fences, broke more gates, broke the backs of more female hogs and was chased by more hunters than any critter there has ever been in this country. Ripper had been shot by several people. My Daddy fired at him seven times with an M-1 carbine and believed he hit him, but the hog never fell. He had been hunted with dogs and he had killed plenty of dogs. There never was a hog hound that could hold him. The last time the boar was run with hounds, he killed two of the best hounds in the county with his slashing tusks, so no one else ever put their dogs on Old Ripper.

Old Ripper got his name because there seemed to be absolutely nothing he couldn't rip up or utterly destroy. Farmers around Bainbridge went to the hardware stores and bought brand-new aluminum gates to put in the gaps he made in their fences. Within a week, the gates were often all bent and torn up where

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ILLUSTRATION BY LEON PARSON

continued from page 41

we sat down to eat. When 7-year-old Bruce Jr. took his first bite of rib eye, he screwed up his face and asked, "What kind of meat is this?"

Peg asked him what was wrong with it. He replied that it was too sweet and too greasy! Peg looked at me and said, "It's no wonder. You've fed this child so much venison he can't appreciate a good cut of beef."

I was fortunate to learn early in my deer hunting years just how productive middays actually are. I would guess that 90 percent of today's hunters overlook this time span, relying almost entirely on the first two hours of the morning and the last two hours of the afternoon for action. These periods are productive but experience has shown me they are not the most productive times to hunt. Because I live in an area where deer seasons are quite long, it is possible for me to gain more experience in one year of hunting than most hunters gain in five.

I still get to my hunting area before dawn. But, comparatively speaking, I have killed very few bucks during the first hour of daylight. I believe the major morning movement occurs an hour before dawn, and by the time good shooting light occurs, most older bucks have already returned to bedding areas.

More bucks have fallen to my rifle in the late afternoon than at dawn and most of these deer were killed as my crosshairs were fading. Last fall I shot a heavy six-pointer so late in the day that my hunting partner accused me of using a headlamp. The last five minutes of shooting light are as productive as the previous two hours.

During the past three hunting seasons I have bagged 12 bucks. One as previously mentioned, was killed just before dark. Another was taken shortly after dawn, while the other 10 bucks were all taken between the hours of 10 a.m. and 1 p.m. This three-year record is representative of my deer harvest for more than 20 years.

There are a number of reasons why midmorning hunts are so productive. First, if hunting pressure is not intense a natural feeding program occurs then. When conditions are normal, deer feed actively for an hour or so before dawn, then retire to bedding areas to rest and chew their cuds. Around midmorning they arise to urinate and to change body positions. A second feeding period begins then and can be as brief as 10 minutes or as long as several hours, depending upon weather conditions.

Whitetails will move a considerable distance, sometimes several miles if necessary, from bedding to feeding areas if preferred foods are unavailable nearby. Extended travels, however, usually occur just after dark and before dawn, especially if desired food is on open land such as in soybean, corn, wheat or hay fields.

Deer will consume secondary browse at midmorning, waiting for dark to move into open country. Last fall I hunted woods adjacent to a soybean field. I knew movement in and out of this open field would take place during the dark hours. The timberland adjacent to the field contained a square mile of rugged ridges and hollows. The hollows, dense with thickets and canebrakes, provided good bedding sites. Mixed stands of oak and pine lined the ridges. By searching for fresh droppings, I located a ridge where deer were feeding on white oak acorns. (Tracks reveal where deer have been since the last rain but soft shiny droppings show where deer have been within the past few hours.)

Soon I had located major trails leading into the area. The prevailing wind at midmorning was from the northwest, so I selected a stand that kept my scent away from the ridge I was watching. The first day was unproductive and I saw only one doe. But at about 11 a.m. on the second morning, a spike buck picked his way up the ridge, and my first buck of the year was soon down. Later I used this same technique to take a big eight-pointer in another state. I killed him at 10 a.m.

I hunt mostly in woods that are open to the public—corporate lands, national forests and wildlife management areas. I learned years ago to use other hunters to my advantage on such grounds. Where deer are hunted hard, their natural movements become increasingly nocturnal. They prefer to stay put until it is dark but are often forced to move about at midday.

The average hunter on public land sits tight for an hour or so after dawn and then begins to move. He is prompted to walk by a lack of action, a loss of body heat, his lunch in the truck and a host of other causes. So he prowls about and unknowingly puts deer on the move—seeing perhaps one out of every 10 deer he spooks.

Deer can sense weather changes hours before they occur.

Whitetails bed in areas where hunter instrusion is least likely to occur. In typical whitetail coverts, bedding sites are most often located in the densest thickets but bucks sometimes bed in cover hardly dense enough to hide a cottontail. When a bedded buck is put up by a hunter, he moves quickly to a known trail that leads to alternate escape cover. Stands overlooking such trails are productive.

I hunt some heavily-hunted company woods near home. One group of hunters are out every Saturday and their modus operandi is always the same: They sit on stand until midmorning and begin making drives at 10 a.m. I listen for the shouts of the drivers as I sit on a hillside that overlooks a brushy bottom where an escape trail crosses a creek. In recent years I have taken three bucks pushed along this trail by that group. All of these bucks were well away from the area being driven, and I never saw one stander or driver. Still, their midday activity has put meat in my freezer. I often wonder what their thoughts are when my shots ring out.

The midday movement of bucks is even more pronounced when the rut is in full swing. The peak of the rut is at hand when new scrapes begin appearing on almost a daily basis. At this time, a buck may be seen at any hour of the day. A doe in estrus will be receptive for only a few hours, so when a buck gets on the trail of a doe in heat, he seldom stops until mating is accomplished. When you discover a fresh scrape, hunt hard from dawn until dark because your chances of scoring are dramatically increased.

Last December, I eased along an oak ridge at midmorning, looking for a feeding buck. When I returned to this ridge at midday, I found a scrape had been put there after I had passed through two hours earlier. I knew a buck might be within my range of vision at that very moment, so I silently moved 50 yards downwind and sat down with my back to a tree. I planned to sit there until dark if need be, but within 30 minutes, a cavorting doe arrived. She ran two tight circles and then stared back down the trail. Instantly I knew she was teasing a buck behind her. Suddenly, she loped across the scrape and vanished in the brush. A moment later the buck appeared in a stiff-legged trot with his nose to the ground. It was 1 p.m. when I pulled into camp with my buck tied to the rack of my three-wheeler. He weighed 185 pounds and had eight points.

Even during the rut, weather conditions have a great impact on the midday movement of whitetail deer. Prime time periods are most likely to be productive when it is sunny, windless and warming. On such days, bucks seem to be less cautious and downright careless at times. Several years ago I was ambling down a logging road toward camp and a hot lunch. I made no effort to walk quietly but still I moved to within 30 steps of a feeding buck. He was looking directly at me and chewing a mouthful of browse when he fell. I have killed three other bucks in similar situations.

Like most wild creatures, deer have an inherent ability to sense weather changes hours before they occur. I believe a whitetail can anticipate foul weather 12 to 24 hours before it arrives. Deer feed heavily before a front hits. In my experience, the period of vigorous feeding does not extend until the hour the bad weather arrives but generally terminates several hours prior to the weather change. When the bad weather begins, deer are already placidly chewing their cuds in protected bedding areas.

I follow weather reports faithfully and plan my hunts accordingly. Midday hunting is very productive prior to the arrival of a front but there is an exception to this pattern. If the front arrives in the dawn hours, deer will have fed most of the night and will not be on the move at daylight. A front that is scheduled to arrive at night will cause deer to feed actively during the previous day. Deer will occasionally move into open areas to browse on preferred foods before a front arrives but not often enough to justify taking a stand overlooking open croplands. Even prior to bad weather, expect to find bucks using dense dark coverts. They will eat choice foods if possible but will double up on secondary browse rather than risk direct exposure during daylight hours. Prior to a storm front, that brief midday feeding period can quickly become a major feeding period of several hours' duration.

Dark days with heavy cloud cover usually makes for good hunting. Whitetails are little disturbed by mists or even gentle rains but will severely limit their movements if it is raining hard. They are not bothered much

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by light snow but heavy snow will push them into hiding. High winds will put whitetails to bed because their sense of smell becomes greatly impaired. They will remain bedded until such conditions change. Wind also makes for noisy woods and wind-tossed underbrush limits visual detection of enemies.

If I must hunt under rainy and windy conditions, I tailor my tactics to the amount of hunting pressure in the area. When pressure is light I prowl through thickets, cutovers, evergreen plantations and other likely bedding areas. Experience has taught me that without hunter pressure, I can sit or stand during such weather until I turn to stone and I still won't see a single deer. But by moving slowly and stopping often, it is possible to get within a few yards of a bedded buck. At the tag end of the season last fall, I moved within three steps of a buck on just such a day. He jumped and scared the wits out of me, though, and I missed an easy shot.

If I share an area with a number of other hunters on a foul day, I try to remain on stand. Most of these hunters do not have the patience to sit still and they will soon be on the move trying to jump a buck.

Knowing where to take a stand is important. When bucks are put up in bad weather, they slip along escape trails to the next suitable bedding area. These escape routes are not usually major trails that follow ridges and hollows; instead they lie along hillsides and are well protected by brush. A spooked buck may begin a sprint downwind but you can bet your rifle that as soon as he gains some protective cover, he will put his nose into the wind.

Consistently successful deer hunters work hard at their sport. It is pleasant to lounge around camp from midmorning until midafternoon but you must forfeit some of the best hunting of the day for this leisure. The hours from 9 a.m. to 2 p.m. are the prime time. Besides, the more time spent hunting the better the chances of seeing a buck.

When hunting, I marvel at the sights, sounds and smells of the big woods, but I do not permit my concentration to wander far from the task at hand—which is to kill a buck. Years ago, when I was having problems taking a buck, an old man who lived in a cabin near the Mississippi River helped me a great deal.

"What is the best way to kill a buck?" I asked the old man. He gave me a wide toothless grin, then pointed the stem of his pipe at me. "Hunt all day," he said. "And hunt as if your buck's a man with a gun who's bound on killing you if he sees you first." To this day, that statement remains the best advice I ever got on how to hunt whitetail deer.

NEW TACTICS FOR RABBITS

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collected a few rabbits, the frost suddenly evaporated. Although the dogs jumped at least 10 other rabbits, they were at a loss to stay on trail. The cool dry air had turned the ground into frozen piecrust, making trailing impossible. Our only other shots were at rabbits we had jumped ourselves.

Although the dogs have their bad days and the hunter must do everything possible to help them, they also have excellent days. Many times I have returned home with my limit of rabbits without ever going into the brush.

The dogs will usually have one of these spectacular days after a couple days' rest coinciding with the arrival of wet weather. Several years ago, snow and frigid weather kept the dogs and me inside for several days. At the end of the week, the weather broke and the snow started melting, providing ideal hunting conditions.

I had barely let the dogs out of the pickup when they picked up a rabbit. For the next couple of hours, the dogs trailed rabbits constantly, allowing me to shoot my limit very easily. On the way back to the truck the dogs circled several more rabbits but I had to just watch them hop by. The rabbits, forced to spend a few days underground, left their holes as soon as the weather turned warmer.

During the last 10 to 12 years, I've noticed a definite change in the rabbit population and their habits. Many hunters will lament that "There just aren't any rabbits anymore." Then they'll go on to tell you they used to jump lots of rabbits without dogs.

Ten to 15 years ago you could indeed kick up many rabbits in fields and light brush. These "field sitters" were killed much more often than the rabbits living in heavy brush. Over the years, the rabbits that survived had young that naturally grew up in heavy brush and often lived their entire lives there. Even today, rabbits that stray from the vine tangles and dense blackberry patches are soon killed. Through a process of natural selection, rabbits have now become much more inaccessible to the hunter. But there are probably just as many rabbits now as before.

Hunters instinctively travel the path of least resistance. Soon after opening day these "paths" are quite evident throughout rabbit country and many hunters follow them. Rabbits also follow these paths but usually after nightfall. But if the hunter's dog will leave the paths and hunt the brush nearby, the hunter only has to stay on the path and wait for the rabbit to cross it.

If the hunter cannot persuade his dogs to search the brush, he must leave the paths and help them. Once a rabbit is flushed and the dogs have taken the trail, the hunter can usually retreat to one of the paths or openings and wait for a shot. Failing to leave these well-established routes through rabbit country can mean an empty game bag at the end of the day.

Cottontail rabbits are pursued by more hunters than any other game. According to the Pennsylvania Game Commission, an estimated 837,567 hunters participated in rabbit hunting in that state during the 1981 season. But even with this large turnout, the average hunter still only managed to bag 3.5 rabbits for the whole season—less than the legal limit for a single day!

My own findings are consistent with those of the commission. I asked scores of hunters, both in the field and in various gun shops and sporting clubs, just how they did on rabbits. Most said they shot two or three during the season, while many said they hadn't yet shot any.

When first leaving his vehicle, a hunter is excited and "ready" for the cottontail to squirt out from under his feet. But when no rabbit is encountered right away, the hunter drops his guard—this is the time when the cottontail will explode in a mad dash for heavy cover. The surprised hunter throws a hail of lead after the fleeting target but seldom connects.

A hunter should be constantly surveying the area, looking for spots that are likely to hold rabbits. He should approach these areas with his gun at port arms and his thumb on the safety. If a rabbit flushes, the extra second or two saved can mean an unhurried shot.

Train yourself to look for sitting rabbits. The trick is *expecting* to see a rabbit. I expect to see one at the base of every tree, in every clump of grass and under every tangle of vines. Look in every one of these places individually instead of just scanning the brush as a whole.

Once the rabbit knows it has been spotted, it will sit perfectly still as long as the hunter doesn't make any sudden moves toward it or make direct eye contact.

During the past season, two friends and I were hunting a power-line right-of-way. The cut narrowed at one point, so I entered the woods on the far right side and began looking intently for a "sitter." Walking around the rim of a sink hole, I thought I spotted a rabbit sitting on its side. I took a few steps forward but lost the image and figured no rabbit was there. Just to make sure, though, I backtracked a couple steps. Sure enough, I could see one eyeball and a small section of white fur. The rabbit burrowed a hole into the side of the bowl, and one vine and several leaves were all that it took to camouflage it.

I yelled to Martin, who came and stood beside me, but he could not make out the rabbit although it was less than 15 feet away. Martin walked around the rim of the sink hole and had to step down into the bowl to flush the rabbit. It came out of the sink hole like a rocket but presented an easy straightaway shot.

Some of the best places to spot sitting rabbits are steep banks with sparse medium-size trees, under patches of briar bushes and at the base of clump weeds such as buffalo grass. The steep banks are probably the easiest places to spot sitting rabbits because they dig shallow holes straight back into the banks or at the base of a tree. The hunter has only to walk the base of the steep bank and look closely.

Rabbits also live in groups and clusters. Some areas will provide action year after year, while others will yield very few rabbits. The adage that 10 percent of the lake holds 90 percent of the fish applies very well to rabbit hunting. In an area of one square mile, there may be many rabbits but most will be found in 20 to 25 percent of that square mile.

Rabbits and rabbit hunting have changed. The line-up-and-walk-through-a-field routine just doesn't work anymore. But by studying the rabbits' changing habits and by being willing to abandon "path hunting," it's possible to consistently bring home your limit. And if your dog is having a bad day, don't be afraid to jump in and give a little help. After all, everyone has a few bad hunting days.

Grouse is "the craftiest of all our game birds" WHF 67

Chapter 6 | [Grouse + pheasants are our 2 craftiest upland birds. Grouse is even tougher to handle in East; pheasant tougher in West. But different. Both much craftier than bobwhite or woodcock.]

"Pointers, as a breed, develop faster than setters" ... WHF 69. (And shorthairs faster than pointers?)

"The pointer man may often gain a season or more on the setter man..." WHF 70

"Dogs weighing around fifty pounds are the accepted average with bitches weighing (40) to 45." WHF 73

7? | WHF 77 - a dog should put his nose where the scent is, high or low.

78 - OK for a young dog to be "over-zealous," but not "crazy-headed."