

the case of the

Slandered Do-gooders

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BLACK RACER. Photograph by Hope Sawyer Buyukmihci.

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IT MUST BE HARD to be a snake—even a little one. Nothing you do is right. Glide along in the only way you can, since you lack arms, legs, wings or fins, and you're sneaking up on something. Stop and you're preparing to strike. Raise your head off the ground so you can see better with those nearsighted eyes, and you're trying to throw a spell. Or sample the air with that incredibly delicate sense organ, your tongue, and—heavens!—you're flashing your stinger.

In fact, nothing you *don't* do is right, either. To grasp your tail in your mouth and roll downhill like a hoop is an idea in the realm of mythology, but you're still charged with such foolishness. It's the same with swallowing your babies for their protection, pilfering milk from defenseless cows in the barn, and poisoning people with that non-existent dart in the end of your tail. But it's been this way since the first man peered out into the dark and imagined things.

This is how it is with snakes. Almost every man's hand is against them. They're a full notch lower than a varmint, whatever that may be. And yet the truth about most snakes is fully as amazing as the stories made up about them. And while the facts may never overcome childhood

fears, they may succeed in presenting any snake for what it is: one of Nature's most marvelously adapted creatures.

Take their peculiar locomotion, for instance. If, as a child, you tried to squeeze in under some object such as a sofa, you may have some idea of the handicap of no arms or legs. This, in effect, is just one of the problems that snakes have solved.

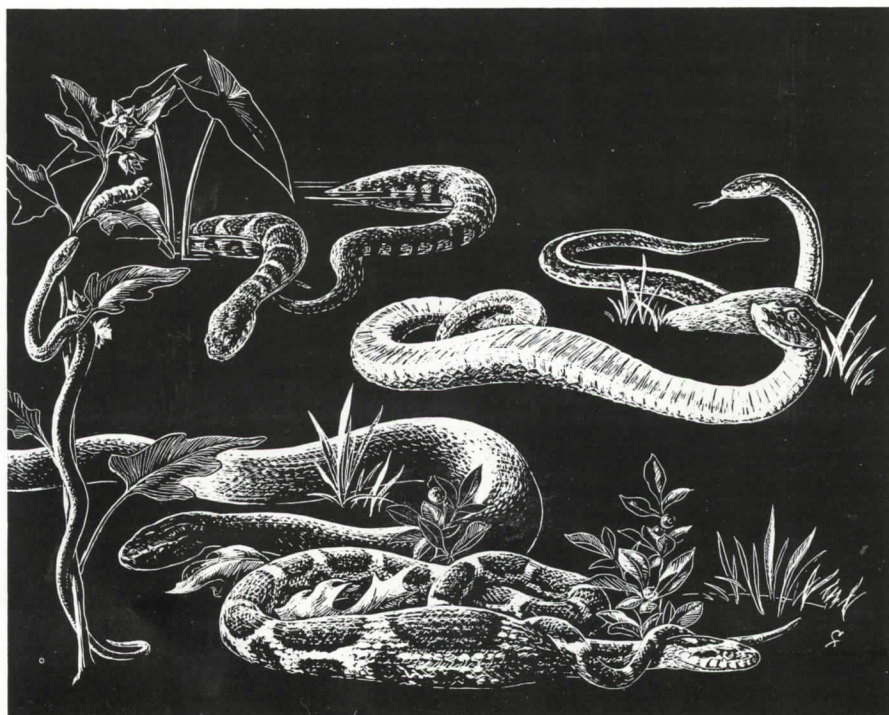
On rough or uneven ground a snake can take advantage of tiny projections, throwing its body into successive shallow loops and thus moving itself forward by forcing against these projections from the rear of each loop. In addition, each of the large under-scales, or scutes, overlaps the one behind it, with its

free edge thus pointing backward. To glide, the snake reaches forward a tiny bit with each scute and presses backward, similar to the way you could inch along on your stomach by using your toes. With a hundred scutes or more working in harmony, the effect is a steady glide.

This is fine for most purposes. But it is strictly one way: forward. Last summer I covered my blueberries with some old coarse-mesh netting to keep the birds away. A female grass, or garter, snake had poked an inquisitive nose into one of the squares of the net. Finding that it admitted her head, she continued forward. But what she hadn't reckoned on was that her black-and-yellow-striped body was not as lissome as it had been earlier in the season. Carrying perhaps two dozen developing babies within her, she had that matronly air.

She crawled forward until she came to the beginning of the bulge where her future generation was stored. And there she stayed, held from backing out by the edge of the last scute which had been able to squeeze its way through the mesh.

When I discovered her, she'd apparently been a captive for a day or so, and was decidedly weary of the whole affair. Seeing me, she renewed her struggles. Then, before my astonished eyes, she unloaded her cargo by the simple process of giving birth to about fifteen babies. Her embarrassing corporation gone, she



A group of harmless snakes: at far left, the smooth green snake; then clockwise come a water snake; the familiar garter snake; a hog-nose snake coming out of its act (see text); a milk snake, swollen after a meal; and above it, a blacksnake.

slipped the remainder of her body through the net. While I gaped, the entire company took off in sixteen different directions. Soon, no doubt, the incident would be forgotten, as the young searched for earthworms while the mother looked for frogs and toads.

It is this tendency to give birth when disturbed that probably produced the fiction that a mother snake swallows her babies. The young have a running start when born, so to speak, and can take care of themselves almost at once. Such precocious youngsters, therefore, *must* have fled back into their mother for protection: they simply couldn't have been newborn. And so the story also goes for the harmless species of our snakes whose eggs hatch inside them, with the young remaining in the mother for a few days longer.

Of course, the snakes that lay eggs may never even see their own young. The eggs are abandoned and when the youngsters hatch from beneath their sun-warmed stone or from the little nest in the sand, they're on their own. No anxious mother hovers near to swallow them if the going gets tough. But a good yarn dies hard.

Another myth illustrated by the floundering female concerns her tongue. It can do several things, but none of them is to sting. It is no more dangerous than an eyelash. In fact, an eyelash is a heavy club compared to the perfection of the snake's sensitive, two-pronged antenna.

Far from being strong enough to sting, the tongue of a snake is so delicate that its touch can scarcely be felt. My garter snake had no intention of threatening me with it. Rather, by sampling the air with its moist tissues, she was able to learn something about me. Picking up molecules in the air on her tongue, she'd transfer them to a special organ in the roof of her mouth. This exquisite chemical laboratory—known as Jacobson's organ, after its discoverer—would analyze my airborne trail. In addition to her normal sense of smell, it would tell her, far better than her brown eyes could judge, whether I was a living thing or merely a stone.

Had she actually touched me with her tongue, her information would have been increased enormously.



Blacksnake eggs, laid in warm soil, hatch in early summer.

Then she would have got what amounted to a taste.

The process by which a snake eats is like pulling a tight stocking over a foot. First one side, then the other, is worked forward. The jaws of a snake are equipped with loose hinges, somewhat like the slipjoint of a pair of pliers. They also have a flexible center cartilage between the right and left halves, top and bottom. Backward-pointing teeth hook into the prey and the snake "walks" its way into its meal by alternately advancing right and left jaws.

Here too, a snake can move only forward. Once committed to a meal, it's bound to finish it. This is fine if it's only a snack, but if it amounts to a half-hour banquet, there's a new problem. The difficulty isn't the size of the meal, for a snake can stretch amazingly. But it also has to breathe.

The well-adapted snake is prepared for this eventuality, too. Near the base of the tongue is a tube which connects with the lungs. Thrust forward, the tube extends out into the air. The snake rests, takes a breather—then tucks its snorkel away and goes back to the work of swallowing.

After such a meal a snake may be lousy for a week. Yet there is more to its life than just eating and keeping out of trouble. There's the matter of providing the world with more snakes, for instance. For all their reputation for cold-bloodedness, snakes show surprising solicitude in their love-making.

Most mating takes place in spring, soon after hibernation. It often occurs on a ledge or in a stone wall warmed by the sun, since a snake must absorb its temperature from

its surroundings. Rubbing its nose along the body of a female and perhaps throwing a casual loop over her, the male caresses his intended with all the apparent concern of a boy taking his best girl to the drive-in. True to traditional girlhood, the female acts as if she couldn't care less—at first. However, as the male's suit gains favor, she may rub and loop right back. Finally, when they are twined almost like the caduceus of a physician's insignia, mating takes place. Then, depending on the species and the climate, eggs are laid in soil nests in early summer. If it is a live-bearing species, the young are born in July and August.

A snake is, in reality, just another wild animal, and every bit as much a part of the outdoors as a mouse or a maple or a meadow lark. Each has its own interesting life history. The hognosed snake, or puffing adder—which ranges just barely into southern Vermont all the way from the Gulf Coast—is too stocky to escape many enemies. Instead, it has developed a unique means of defense. Flattening out to twice its normal size, it hisses and strikes at any offending creature.

However, if the sham doesn't work and the intruder accidentally notices that the snake's "vicious strike" is often made (surprisingly) with jaws closed, the puff adder goes into Phase Two of its little drama. Suddenly seized with what appears to be the terminal stage of apoplexy, it rolls about in a frenzy. Its jaws drop open, its tongue hangs out, and it rolls over onto its back—dead.

If the enemy picks the snake up, it hangs limp as a dead snake should. But then if it's turned over on its belly, the "dead" snake goes into

Phase Three. This consists of rolling smartly over onto its back again.

Other snakes have their personalities, too. There's the common milk snake—also known as the checkered adder—which has been saddled with the delightful tale that it steals milk from cows standing meekly in the barn.

Actually the milk snake comes in from the fields and brushland on a more commendable errand: to perform as a mousetrap. Able to follow rats and mice into their holes and devour the young, it can do the job better than any cat.

If the three-foot-long milk snake is able to do such good work on rodents, its larger cousin, the black-snake or racer, should be that much better. One of the unforgettable sights of my youth was watching a five-foot blacksnake enter a mouse-

hole at the edge of a meadow. It got results in ten seconds. To the accompaniment of squeaks of alarm, mice erupted in all directions from holes I never knew existed. They leaped out, dived back in another hole, and leaped out again. That portion of the meadow looked like a field of strange, brown popping corn.

The red-bellied, ring-necked, and the brown varieties of snakes are small and found under logs and stones. They feed on insects and other small creatures that share their territory, and aren't much bigger than a good-sized earthworm. As one fifth-grader told me, presenting a twelve-inch red-bellied snake: "You can have it, Mr. Rood. It ain't even big enough to scare girls with."

Sometimes we come across the smooth green snake at the edge of a meadow, or the yellow-striped ribbon snake along a streambank. The former, about two feet in length, and the latter a little longer, are "big enough to scare girls," but they don't get the chance very often. Both slender species are too well-camouflaged to be noticed. As they glide through the grass in search of insects, spiders and amphibians, they seem to melt into their surroundings. They are so graceful and smooth in their movements that more than once I've stared at what I thought was a stationary snake only to have it grow thinner before my eyes, suddenly turn into a tail tip, and then disappear.

The vanishing trick is a specialty of the water snake, too. One of the shyest species, it drops into the water from its basking log before you can drift close. Like most snakes its

body is very sensitive to vibrations, so even if it happens to be facing the other way, it can feel the impact of ripples from an approaching boat. A few flicks of its tongue to sample the air for odors and more vibrations—and it dives to the bottom.

For its diet of fish and frogs the water snake often chooses the slower species, leaving the swifter simply because it cannot catch them. Of course it is not a water moccasin, but its four-foot body, as thick as your wrist, makes people think it must be.

The little-seen timber rattlesnake puts on the best disappearing act of them all. Shy, retiring and mild-tempered, it is seldom seen even in places where it's known to exist. Accidental bites are so rare that many doctors have never seen a case.

The rattlesnake is a creature of unusual gifts. Not only does the rattler have the ability to "smell" with its tongue and "hear" with its body, but it carries a delicate heat detector as well. This is in the form of a pit between the eye and nostril, and larger than the nostril itself. Delicate nerves in the pit are amazingly sensitive to slight changes in temperature.

When a warm-blooded animal, such as a rodent or small bird, has been struck by a rattlesnake, the snake retires until its victim has ceased thrashing around. Then, guided largely by its heat detector, it "homes in" on its prey. The U. S. Air Force's "Sidewinder" missile is so named because it uses a heat-detector system to find its target, as does the Southwest's rattlesnake by the same name.

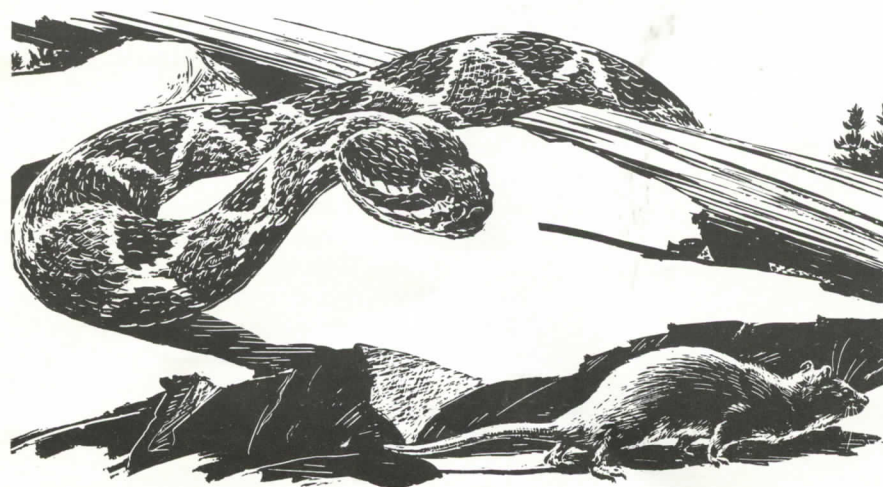
The possessor of these talents averages something over three feet long. It is dressed in a pattern allowing it to lie unnoticed among the leaves: yellow with brown or black crossbands, or entirely dark in color. The newborn young are attractive, with their banded bodies, but they've got snippy dispositions. They will defend themselves with tiny poison fangs that can give a painful wound. They also shake their single little button on the end of their tails, but it is firmly attached and won't rattle.

With maturity, the snippy disposition calms down.

All of which, as I said, makes it tough to be a snake, even a little one. And to make it worse, for many people there *are* no little snakes.



Tiny red-bellied snake, drawn life-size, is a bit of beauty and usefulness.



Rattlesnakes are shy, mild tempered, seldom seen: accidental bites are so rare that many doctors have never seen a case.