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Adventures with Sloths

By ALEXANDER F. SKUTCH

Photographs by the Author

SLOTHS are small, long-limbed, stubby-tailed animals covered with long, coarse, gray hair, and they live among the tree-tops in the forests of tropical America. Their feet are equipped with exceedingly long, strong, curved nails, which they hook over the boughs of trees while they hang in an inverted position, back downward, and browse upon the foliage, which is their chief food. The three-toed sloths have three claws on each forefoot and hindfoot; the two-toed species bear only two nails on the forefeet, three on the hindfeet.

I have met sloths in widely separated parts of tropical America, yet rarely more than one or two in a day. But one April day, while voyaging along the still waters of a long, meandering lagoon in western Panamá, we saw five grown three-toed sloths, *Bradypus griseus*, in the trees along the bank, all within a distance of about a mile, and all on the same side. This was more than I had seen during the five months I had already spent in the same region, often traveling along the same lagoon, which was an earlier bed of the Changuinola River. Why this particular day should have been my "Sloth Day" I do not know. Four of the sluggish animals were in guarumo or trumpet trees, a species that springs up rapidly in

new clearings and openings in the forest, and which is easily recognized by its open crown consisting of a few coarse branches springing in whorls from the slender trunk, and its great, long-stalked, palmately lobed leaves. These leaves are a favorite food of the three-toed sloths, which seem to prefer them to any other kind.

One of the sloths along the bank of the lagoon was a female carrying a cub clinging to her breast. She was descending the trunk of a trumpet tree, which she had left quite bare of foliage. We watched her climb downward until she disappeared among the bushes beneath. When not otherwise engaged, the sloths devoted much time to scratching all accessible parts of their body with their long claws, sometimes devoting half an hour continuously to this occupation, which they carried on in a sustained, mechanical fashion. One hung head downward while it scratched one foreleg with the claws of the other. Two of the sloths were resting upright upon the thick bases of horizontal branches, where the trunk served as a back-rest. With their heads bent forward and faces hidden between their arms, they were featureless masses of gray fur. Often one sees them sleeping so, especially in the rain. Thus they find

relief from hanging constantly back downward.

While we watched one of these sleeping sloths, a male, he awoke, uncurled himself, and began to climb out toward the end of a bough of the trumpet tree, advancing the right foreleg simultaneously with the left hindleg, and the left foreleg at the same time as the right hindleg. Every movement was made slowly, with great deliberation. Arrived at last at the end of the bough, he stretched out a long, thin forearm and, with its three hooked claws, drew in one of the big leaves, at the edge of which he began to nibble. At the rate at which this and other sloths ate, we estimated that one such leaf would keep him busy for half an hour or more.

While we watched this sloth feeding, Uriah, our black West Indian boatman, suddenly announced that he would capture it for me. I wondered whether he intended to climb the trumpet tree and take punishment from the ants that lived in the hollow trunk and branches and swarmed over the bark and leaves, which they are supposed to defend from the attacks of animals. But he soon showed that he had different plans. Jumping ashore, with his long machete he cleared a space in the close-set stand of tall wild canes that grew on the bank, directly beneath the sloth. Neither the rustling of the long cane leaves a foot or two beneath him, nor the crashing blows of the knife that severed the canes, caused the beast alarm. He merely moved his head from side to side with ludicrous deliberation, and appeared to ignore all that was happening below. When the opening in the cane-brake had been made



The patch of short fur of variegated colors that marks the male of the three-toed sloth. Below, the sloth climbs deliberately down the trunk of the small tree that he found a "deadend".



sufficiently wide to permit freedom of movement, Uriah chose a long, stout cane and with a "withe", or length of slender flexible vine, tied a stick to its end to form a crude hook. The cane was so long and heavy that Uriah needed the assistance of his companion, King, to raise it up and hook it over the bough to which the sloth clung. Through all the movement, talking, and shaking of the branch, the animal remained perfectly quiet, as though nothing out of the ordinary course of his life were taking place.

The sudden pull upon which Uriah depended to break the bough and bring down the sloth failed of its purpose, because the hook slipped off. But the abrupt jerk served to awaken the beast from his lethargy. He climbed up the branch with determination, nay, even with what in a sloth must be considered haste, since at best a sloth must "make haste slowly". He did not even stop at the main trunk, but continued his steady advance or, rather, retreat, until he came to a natural halting place at the end of a limb on the other side of the tree.

Uriah prided himself upon his skill as a hunter of "tigers" (jaguars), "lions" (pumas) and other big game, and to have his skill as a bushman thus foiled by a beast so slow as the sloth must have caused him severe chagrin. With set mouth, he piled canes against the leaning trunk of the trumpet tree until he had made a sort of platform upon which he could stand with his bare feet. From this more elevated position he could barely reach, with the hooked end of his cane, the bough from whose extremity the sloth now hung. When he had at



The sloth hangs back downward in its usual position. The sloth's whole expression is one of utter stupidity and helplessness, but, on acquaintance, is appealing in its lack of aggressiveness and quiet resignation.

last caught the branch, he gave a sudden tug; the brittle, hollow limb snapped off under the combined strain of the sloth's weight and Uriah's pull. Still clinging tightly to the leafy end of the branch, the animal came hurtling through the boughs above my head and plunked into the shallow, weed-covered water at the margin of the lagoon. "The experiment worked, sir," was Uriah's only comment on his success.

The sloth lay partly submerged, head buried in the floating grass, still clinging to his bough and making no movement. The azteca ants, disturbed by their fall, swarmed out of the hollow internodes of the branch and stumbled through the animal's pelage, making valiant but ineffectual attempts to reach the skin. Now I understood how the sloth, protected by his dense hair, could browse upon the foliage of the trumpet tree without being bothered by the ants. A number of small gray moths, *Cryptoses choloepi*, ran about over his back, or took short flights, but always hid themselves again in the animal's long hair. They seemed to be permanent residents here, and all the handling that our captive subsequently received failed to dislodge them, until most were collected and sent to Washington with a request for information. The larvae of these moths, it appears, subsist upon the minute algae which form a green encrustation over the long, coarse hairs of the sloth's arms, neck and back. Apparently they do not attack the fur itself, for our animal's abundant pelage was in excellent condition, and far from moth-eaten. I did not actually find any of the moth larvae present.

nor any external parasites of any sort on Uriah's sloth.

With his strong claws, the sloth had attached himself so firmly to the water weeds among which he had fallen that a few skillful touches of the machete were necessary to cut him loose and draw him into our skiff. Uriah made a noose in the end of a piece of pliable vine and tightened it around one of the beast's hindlegs. The sloth had been placed in the bow, and as the occupant of the forward thwart I was given the free end of the vine to hold. But this was a superfluous precaution; for although, as we later made sure, the sloth had not been injured by his fall into the water, he lay prone in the bottom of the boat, scarcely moving, during the two-hour homeward voyage.

As I sat before him on the bow thwart, I had ample time for the contemplation of the strange creature that had so unexpectedly become my possession. He was covered everywhere, except on the face and a spot between the shoulders, with long, coarse, flattened, gray hairs, the color of "Spanish moss" and of much the same "feel". This resemblance was doubtless not entirely fortuitous, for both "Spanish moss" and sloths hang from the boughs of trees in tropical regions. On the sloth's back these hairs were directed obliquely toward the middle line, so that they pointed downward when the animal hung beneath a branch in his customary position. Beneath the coarse pelage the body was covered with a soft, close, brown underfur. Between the shoulder blades, where the long hairs were lacking from an

area the size of the palm of my hand, the exposed underfur was particularly short, fine, and close-set. This area was marked in the center with a broad, black, longitudinal band, bordered on either side by orange-buff, which in turn merged into gray, black and brown at the edges. This more brightly colored patch in the midst of the gray was conspicuous at a distance and, when I first looked at it through field-glasses, gave the impression of a deep pit in the middle of the sloth's back. I later learned that this patch of short fur is the mark of the male sloth and proves to be completely absent from the females.

On the sloth's face the fur was short and close. His cheeks and forehead were very light gray, contrasting sharply with the dark brown frontal ruff, which was worn in a pompadour over the forehead. His short muzzle was black, his eyes muddy brown. During the day the pupils were narrowed to mere pin-holes, but in darkness they dilated widely. When the animal closed his thick eyelids, as he often did, the eyeballs receded into their sockets, much as with frogs. The minute earlobes, hidden amid the long hairs on the back of the head, suggested imperfect hearing; I found this and other three-toed sloths indifferent to loud noises of all sorts. The neck, covered with coarse hairs, appeared to be thicker than the narrow head. The sloth's whole expression was of utter stupidity and helplessness. Yet, as I came to know him better, I found something appealing in the absolute lack of aggressiveness and quiet resignation that this countenance betokened.

As I carried him from the boat-landing to the house, my sloth stretched his arms slowly in the direction of some trees we passed. This was the one sign of volition, the single gesture to intimate that freedom might be more agreeable to him than captivity, that the animal made on the long homeward journey. Placed in a wire cage on the porch, he clung all day in a corner, head bent forward between his arms, a picture of indifference or dejection. At night he became more active and climbed slowly about the cage. Although provided with foliage of the trumpet tree and leaves of other kinds, he ate nothing during the four days that he remained with us. He was not seen to drink, and he did not void excrement. To remove him from the cage for observation or photography was a matter of great difficulty, for his two-inch-long claws clamped the framework with an iron grip. Once in trying to make him let go I had a finger caught between these claws and the wire, and was held prisoner until Uriah, responding to my calls for aid, came with a screwdriver to pry

up those rigid nails and release me from my bondage.

Set down in the midst of the lawn, the sloth would move his head from side to side with great slowness until he got his bearings. Then he would direct his course toward the tall banana plants in the far corner, beyond which grew a few trees of moderate height. If lifted up and turned around, as soon as he was released again he would infallibly orient himself toward the banana plants and the trees. This seemed to be a tropism with him, as a green plant bends, or a moth flies, toward the source of light. He might be classified as a "dendrotropic" animal. In

crawling over the lawn toward the trees, he moved one foot at a time, with such a slow, unsteady motion that he reminded me of a palsied old man. All his joints seemed to be rusty. On the ground he was plantigrade, walking with hindlegs doubled up and forelegs stretched out, the long nails extended rather than doubled under. First he would move a hindleg, then the foreleg on the same side, then the other hindleg, then the corresponding foreleg. If thrown on his back on the ground, he

would swing out one rigid arm with all the grace of a stuffed teddy-bear, and slowly turn over.

For purposes of observation and photography, we set up a small tree in the yard. When placed in the tree, the sloth would climb out to the end of a branch and here pause to look around and reach out a foreleg for something taller into which he could ascend. But the next tree was far beyond reach, so at length he turned away and closed his eyes drowsily, as though the problems of his life were too tremendous for contemplation. I repeatedly saw him do this when in a difficult situation. Once, when he was at the end of a branch vainly stretching out an arm for something beyond to climb to, it occurred to one of the men to wave a white handkerchief just beyond his grasp. The sloth slowly swung his long arm around, trying to reach the hankkerchief. He would continue this as long as it was dangled in front of him. One who did not know the animal might well have thought that he was playing; but to me this was a stereotyped reaction, as when he reached for the limb of a neighboring tree. Yet, despite the slowness of his reactions, our sloth was able to profit by experience; for after he discovered that the little tree set in the yard was a "blind alley" leading nowhere, when placed in it he would promptly climb down to the ground instead of upward, as at first.

During the four days I kept this sloth he uttered no sound save a kind of sighing, caused by deep respiration, whenever he was suddenly and somewhat roughly torn from the (Continued on page 552)

Poinsettia

By MAE WINKLER GOODMAN

Flower of Christmas . . . shed your bloom
Across the candle-lighted room;
Where holly blends with mistletoe
Like rubies burning on the snow
You stand alone, in stately pride,
Slender, graceful, dignified,
Your green and scarlet leaves unfurled
To share the beauty of a world . . .
Flower of Christmas, here you are
A crimson taper . . . or a star!

ADVENTURES WITH SLOTH

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support to which he clung. I could pick him up and handle him as I pleased, and he never offered the least resistance. Even when I opened his mouth to examine his dentition, he submitted with perfect passivity. I know no other undomesticated animal of half the sloth's size that I could have handled so freely and with so much impunity. Scarcely any other vertebrate with which I am familiar is so spiritless, defenseless and unemotional, or leads a life that seems so purely vegetative. But the sloth's whole behavior is in keeping with its appearance. Its hair is the same color as the bark of many a tree. Like the bark of a tree, it is the host of small green algae, which seem to add to its camouflage; and gray moths take refuge among it, as they might settle on a tree trunk. As the sloth sleeps doubled up in a crotch, it bears considerable resemblance to the big nests of gray carton built by certain tropical wasps. Were the sloth an animal of more vigorous movements, these would betray its camouflage and make it more conspicuous to its enemies.

In the Costa Rican highlands, I have seen only the two-toed sloth, *Choloepus hoffmanni*. It is not uncommon in the wilder mountain forests between 5000 and 6000 feet above sea level, far higher than I have ever met the three-toed species. Its abundant coarse gray hair, even longer than that of the three-toed sloth, hangs loosely below its back like a shaggy mane and seems to fit the animal for life at altitudes where rainstorms are cold, hard and long-continued; yet it dwells also in the hot lowlands. Small algae impart a green tinge to the pelage of the back, as with the three-toed sloth. The two species are equally slow and deliberate in their movements, equally hard to arouse when slumbering rolled up into a gray ball in the crotch of a tree or amid a tangle of vines, and equally indifferent to danger, at least when it approaches in the human form. In the Costa Rican mountains, the two-toed sloth feeds by preference on the pinnately compound leaves of the tree *Brunellia costaricensis*, just as in the lowlands the three-toed sloth prefers the foliage of species of *Cecropia*, although it will eat other kinds.

I found parent two-toed sloths with young in June, July and August. The single sloth-cub rode on the breast of its mother as she moved along in the usual inverted position. Its breast was turned toward hers, and its long claws were tenaciously imbedded in her coarse fur. The youngster's shorter fur is everywhere very thick, dense and soft, with nothing of the coarseness and harshness of the adult's pelage. The hairs on the body and limbs are cinnamon-buff on the ends, but basally gray; and the superposition of

these two colors produces a shade difficult to describe.

In August I watched a female sloth with a baby on her breast feeding in the top of a lofty tree. Presently the youngster pushed forward between her arms, pulled a twig toward itself, and also began to munch the foliage. After a while, it left its mother's upper surface to cling to the twigs beside her, where it continued to browse. It always remained in contact with its dam and, after a few minutes, climbed back upon her once more. It clung to her ventral surface, back upward in the usual fashion, when she moved slowly away. From this it appeared that the young two-toed sloth does not leave its mother all at once, but only by degrees becomes independent of her.

In June a boy brought me a young two-toed sloth only ten inches in length, which had probably lost its mother, for it seemed too young to have otherwise begun to shift for itself. When placed in a tree, the little sloth climbed restlessly about over the branches, without attempting to eat the foliage. It seemed unable to climb up or down even a slender trunk. From time to time it voiced a low, bleating cry, perhaps a call for its lost mother. This cry, which was clearly audible at a distance of a hundred feet, is the only sound, other than hisses and sighs, that I have ever heard from a sloth of either species. The young two-toed sloth was possessed of much more spirit than the adult male three-toed sloth that I had earlier owned. If touched, it tried to defend itself by striking with its forefeet, but its blows were delivered too slowly to be effective. At the same time it protested by uttering a low hiss. When taken in hand it tried to bite, and, although its teeth were still very small, they commanded respect. Once, while being carried, it seized the palm of my hand between its jaws. The dullness of its teeth, coupled with the toughness of my skin, prevented its drawing blood; but the grip was painful while it lasted, and left the deep impressions of two teeth. If I tried to pull the young sloth from the branch to which it clung, it held on tenaciously and voiced fairly loud, bleating cries. After making observations and taking photographs, I sent the youngster back to the woodland, with the hope that it would live to grow up.

ALEXANDER GARDEN

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he had seen male sperm.

Shortly after this discovery, Garden became a possessor of another interesting amphibian. This was the Congo Eel, *Amphiuma*. Garden writes thus in his letter to Linnaeus: "It differs in many particulars from the *Siren*; most evidently in the following. . . . This animal has four feet, with two toes to each, without claws. The