

# SCRIBNER'S MAGAZINE

VOL. XLVII

MAY, 1910

NO. 5

## AFRICAN GAME TRAILS\*

AN ACCOUNT OF THE AFRICAN WANDERINGS OF AN AMERICAN  
HUNTER-NATURALIST

BY THEODORE ROOSEVELT

ILLUSTRATIONS FROM PHOTOGRAPHS BY KERMIT ROOSEVELT AND OTHER MEMBERS  
OF THE EXPEDITION

### VIII.—TO LAKE NAIVASHA.



FROM this camp we turned north toward Lake Naivasha.

The Sotik country through which we had hunted was sorely stricken by drought.

The grass was short and withered and most of the waterholes were drying up, while both the game and the flocks and herds of the nomad Masai gathered round the watercourses in which there were still occasional muddy pools, and grazed their neighborhood bare of pasturage. It was an unceasing pleasure to watch the ways of the game and to study their varying habits. Where there was a river from which to drink or where there were many pools, the different kinds of buck, and the zebra, showed comparatively little timidity about drinking, and came boldly down to the water's edge, sometimes in broad daylight, sometimes in darkness. But where the pools were few they never approached one without feeling panic dread of their great enemy the lion, who, they knew well, liked to lurk around their drinking places. At such a pool I once saw a herd of zebras come to water at nightfall. They stood motionless some distance off; then they

slowly approached, and twice on false alarms wheeled and fled at speed; at last the leaders ventured to the brink of the pool and at once the whole herd came jostling and crowding in behind them, the water gurgling down their thirsty throats; and immediately afterward off they went at a gallop, stopping to graze some hundreds of yards away. The ceaseless dread of the lion felt by all but the heaviest game is amply justified by his ravages among them. A lion will eat a zebra (beginning at the hind quarters, by the way, and sometimes having, and sometimes not having, previously disembowelled the animal), or one of the bigger buck at least once a week—perhaps once every five days. The dozen lions we had killed would probably, if left alive, have accounted for seven or eight hundred buck, pig, and zebra within the next year. Our hunting was a net advantage to the harmless game.

The zebras were the noisiest of the game. After them came the wildebeeste, which often uttered their queer grunt; sometimes a herd would stand and grunt at me for some minutes as I passed, a few hundred yards distant. The topi uttered only a kind of sneeze, and the hartebeeste a somewhat similar sound. The so-called Roberts' gazelle was merely the Grant's gazelle

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The rhino stood looking at us with his big ears cocked forward.—Page 519.

From a photograph by Kermit Roosevelt.

of the Athi, with the lyrate shape of the horns tending to be carried to an extreme of spread and backward bend. The tommy bucks carried good horns; the horns of the does were usually aborted, and were never more than four or five inches long. The most notable feature about the tommyes was the incessant switching of their tails, as if jerked by electricity. In the Sotik the topis all seemed to have calves of about the same age, as if born from four to six months earlier; the young of the other game were of every age. The males of all the antelope fought much among themselves. The gazelle bucks of both species would face one another, their heads between the forelegs and the horns level with the ground, and each would punch his opponent until the hair flew.

Watching the game, one was struck by the intensity and the evanescence of their emotions. Civilized man now usually passes his life under conditions which eliminate the intensity of terror felt by his ancestors when death by violence was their normal end, and threatened them during every hour of the day and night. It is only in nightmares that the average dweller in

civilized countries now undergoes the hideous horror which was the regular and frequent portion of his ages-vanished forefathers, and which is still an everyday incident in the lives of most wild creatures. But the dread is short-lived, and its horror vanishes with instantaneous rapidity. In these wilds the game dreaded the lion and the other flesh-eating beasts rather than man. We saw innumerable kills of all the buck, and of zebra, the neck being usually dislocated, and it being evident that none of the lion's victims, not even the truculent wildebeeste or huge eland, had been able to make any fight against him. The game is ever on the alert against this greatest of foes, and every herd, almost every individual, is in imminent and deadly peril every few days or nights, and of course suffers in addition from countless false alarms. But no sooner is the danger over than the animals resume their feeding, or love making, or their fighting among themselves. Two bucks will do battle the minute the herd has stopped running from the foe that has seized one of its number, and a buck resumes his love making with ardor, in the brief interval between the first

and the second alarm, from hunter or lion. Zebra will make much noise when one of their number has been killed; but their fright has vanished when once they begin their barking calls

Death by violence, death by cold, death by starvation—these are the normal end-

The savage of to-day shows us what the fancied age of gold of our ancestors was really like; it was an age when hunger, cold, violence, and iron cruelty were the ordinary accompaniments of life. If Matthew Arnold, when he expressed the wish to know the thoughts of Earth's "vigorous, primi-



The waterhole we struck after having made a dry camp on our trek to Lake Naivasha.

From a photograph by Kermit Roosevelt.

ings of the stately and beautiful creatures of the wilderness. The sentimentalists who prattle about the peaceful life of nature do not realize its utter mercilessness; although all they would have to do would be to look at the birds in the winter woods, or even at the insects on a cold morning or cold evening. Life is hard and cruel for all the lower creatures, and for man also in what the sentimentalists call a "state of nature."

tive" tribes of the past, had really desired an answer to his question, he would have done well to visit the homes of the existing representatives of his "vigorous, primitive" ancestors, and to watch them feasting on blood and guts; while as for the "pellucid and pure" feelings of his imaginary primitive maiden, they were those of any meek, cowlike creature who accepted marriage by purchase or of convenience, as a matter of course.



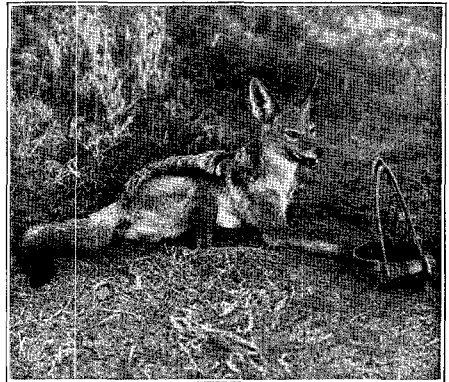


Loring with an elephant shrew.

Loring is called Wanna Panya (the Mouse Wanna) by the blacks.  
From a photograph by Kermit Roosevelt.

It was to me a perpetual source of wonderment to notice the difference in the behavior of different individuals of the same species, and in the behavior of the same individual at different times; as, for example, in the matter of wariness, of the times for going to water, of the times for resting, and, as regards dangerous game, in the matter of ferocity. Their very looks changed. At one moment the sun would turn the zebras of a mixed herd white, and the hartebeeste straw colored, so that the former could be seen much farther off than the latter; and again the conditions would be reversed when under the light the zebras would show up gray, and the hartebeeste as red as foxes.

I had now killed almost all the specimens of the common game that the Museum needed. However, we kept the skin or skeleton of whatever we shot for meat. Now and then, after a good stalk, I would get a boar with unusually fine tusks, a big gazelle with unusually long and graceful horns, or a fine old wildebeeste bull, its horns thick and battered, its knees bare and



A black-backed



A tree



A big gazelle with fine horns shot in a marsh



A pe

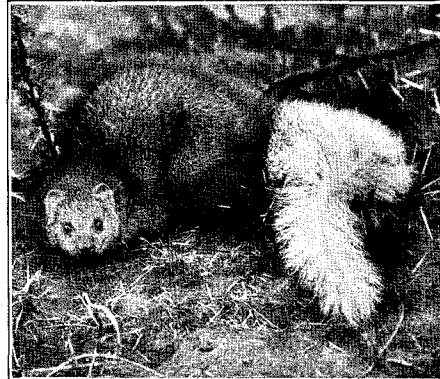
calloused from its habit of going down on them when fighting or threatening fight.

Our march was northward, a long day's journey to what was called a salt marsh. An hour or two after starting we had a characteristic experience with a rhino. It was a bull, with poor horns, standing in a plain which was dotted by a few straggling thorn trees and wild olives. The safari's course would have taken it to windward of the rhino, which then might have charged in sheer irritable bewilderment; so we turned off at right angles. The long line of porters passed him two hundred yards away, while we gun men stood between with our rifles ready; except Kermit, who was busy taking photos. The rhino saw us, but apparently indistinctly. He made little dashes to and fro, and finally stood looking at us, with his big ears cocked forward; but he did nothing more, and we left him standing, plunged in meditation—probably it would be more accurate to say, thinking of absolutely nothing, as if he had been a huge turtle. After leaving him we also passed by files of zebra and topi who gazed at us, intent and curious, within two hundred yards, until we had gone by and the danger was over; whereupon they fled in fright.

The so-called salt marsh consisted of a dry watercourse, with here and there a deep muddy pool. The ground was impregnated with some saline substance, and the game licked it, as well as coming to water. Our camp was near two reedy pools, in which there were big yellow-billed ducks, while queer brown heron, the hammerhead, had built big nests of sticks in the tall acacias. Bush cuckoos gurgled in the underbrush by night and day. Brilliant rollers flitted through the trees. There was much sweet bird music in the morning. Funny little elephant shrews with long snouts, and pretty zebra mice, evidently of diurnal habit, scampered among the bushes or scuttled into their burrows. Tiny dik-diks, antelopes no bigger than hares, with swollen muzzles, and their little horns half hidden by tufts of hair, ran like rabbits through the grass; the females were at least as large as the males. Another seven-foot cobra was killed. There were brilliant masses of the red aloe flowers, and of yellow-blossomed vines. Around the pools the ground was bare, and the game trails



A spotted genet.



A white-tailed mongoose.



A porcupine.



A baboon.





Masai guides on Sotik trip.  
From a photograph by Edmund Heller.

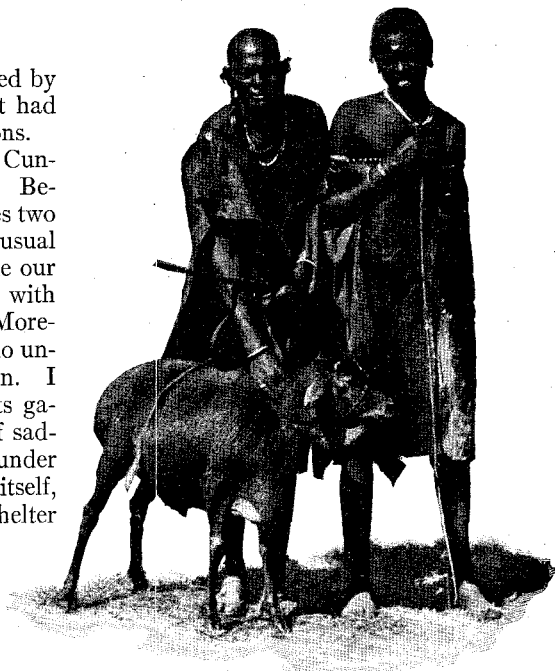
leading to the water were deeply rutted by the hooves of the wild creatures that had travelled them for countless generations.

The day after reaching this camp, Cunningham and I hunted on the plains. Before noon we made out with our glasses two rhino lying down, a mile off. As usual with these sluggish creatures we made our preparations in leisurely style, and with scant regard to the animal itself. Moreover we did not intend to kill any rhino unless its horns were out of the common. I first stalked and shot a buck Roberts gazelle with a good head. Then we off saddled the horses and sat down to lunch under a huge thorn tree, which stood by itself, lonely and beautiful, and offered a shelter from the blazing sun. The game was grazing on every side; and I kept thinking of all the life of the wilderness, and of its many tragedies, which the great tree must have witnessed during the centuries since it was a seedling.

Lunch over, I looked to the loading of the heavy rifle, and we started

toward the rhinos, well to leeward. But the wind shifted every which way; and suddenly my gun bearers called my attention to the rhinos, a quarter of a mile off, saying, "He charging, he charging." Sure enough, they had caught our wind, and were rushing toward us. I jumped off the horse and studied the oncoming beasts through my field-glass; but head on it was hard to tell about the horns. However, the wind shifted again, and when two hundred yards off they lost our scent, and turned to one side, tails in the air, heads tossing, evidently much wrought up. They were a large cow and a young heifer, nearly two-thirds grown. As they trotted sideways I could see the cow's horns, and her doom was sealed; for they were of good length, and the hind one (it proved to be two feet long) was slightly longer than the stouter front one; it was a specimen which the Museum needed.

So after them we trudged over the brown plain. But they were uneasy, and kept trotting and walking. They never saw us with their dull eyes; but a herd of wildebeeste galloping by renewed their alarm; it



A sick Masai boy and his father.  
The sheep is a present to Dr. Mearns for services.  
From a photograph by J. Alden Loring.

was curious to see them sweeping the ground with their long, ugly heads, endeavoring to catch the scent. A mile's rapid walk brought us within two hundred yards, and we dared not risk the effort for a closer approach lest they should break and run. The cow turned broadside to, and I hit her behind the shoulder; but I was not familiar with the heavy Holland rifle at that range, and my bullet went rather too low. I think the wound would eventually have proved fatal; but both beasts went off at a gallop, the cow now and then turning from side to side in high dudgeon, trying to catch the wind of her foe. We mounted our horses, and after a couple of miles' canter overhauled our quarry. Cuninghame took me well to leeward, and ahead, of the rhinos, which never saw us; and then we walked to within a hundred yards, and I killed the cow. But we

were now much puzzled by the young one, which refused to leave; we did not wish to kill it, for it was big enough to shift for itself; but it was also big enough to kill either of us. We drew back, hoping it would go away; but it did not. So when the gun bearers arrived we advanced and tried to frighten it; but this plan also failed. It threatened to charge, but could not quite make up its mind. Watching my chance I then creased its stern with a bullet from the little Springfield, and after some wild circular galloping it finally decided to leave.

Kermit, about this time, killed a heavy boar from horseback after a three-miles run. The boar charged twice, causing the horse to buck and shy. Finally, just as he was going into his burrow backward, Kermit raced by and shot him, firing his rifle from the saddle after the manner of the old-time Western buffalo runners.

We now rejoined Mearns and Loring on the banks of the Guaso Nyero. They had

collected hundreds of birds and small mammals, among them several new species. We had already heard that a Mr. Williams, whom we had met at McMillan's ranch,



Masai man and wife.

From a photograph by J. Alden Loring.

had been rather badly mauled by a lion, which he had mortally wounded, but which managed to charge home. Now we found that Dr. Mearns had been quite busily engaged in attending to cases of men who were hurt by lions. Loring nearly got in the category. He killed his lioness with a light automatic rifle, utterly unfit for use against African game. Though he actually put a bullet right through the beast's heart, the shock from the blow was so slight that she was not stopped even for a second; he hit her four times in all, each shot being mortal—for he was an excellent marksman,—and she died nearly at his feet, her charge carrying her several yards by him. Mearns had galloped into a herd of wildebeest and killed the big bull of the herd, after first running clean through a mob of zebras, which, as he passed, skinned their long yellow teeth threateningly at him, but made no attempt actually to attack him.

A settler had come down to trade with



Masai woman in a "mynyata" (village of huts) we passed on return to Lake Naivasha.

From a photograph by Kermit Roosevelt.

the Masai during our absence. He ran into a large party of lions, killed two, and wounded a lioness which escaped after mauling one of his gun bearers. The gun bearer rode into camp, and the Doctor treated his wounds. Next day Mearns was summoned to a Masai kraal sixteen miles off to treat the wounds of two of the Masai; it appeared that a body of them had followed and killed the wounded lioness, but that two of their number had been much maltreated in the fight. One, especially, had been fearfully bitten, the lioness having pulled the flesh loose from the bones with her fixed teeth. The Doctor attended to all three cases. The gun bearer recovered; both the Masai died, although the Doctor did all in his power for the two gallant fellows. Their deaths did not hinder the Masai from sending to him all kinds of cases in which men or boys had met with accidents. He attended to them all, and gained a high reputation with the tribe; when the case was serious the patient's kinsfolk would usually present him with a sheep or war-spear, or

something else of value. He took a great fancy to the Masai, as indeed all of us did. They are a fine, manly set of savages, bold and independent in their bearing. They never eat vegetables, subsisting exclusively on milk, blood, and flesh; and are remarkably hardy and enduring.

Kermit found a cave which had recently been the abode of a party of 'Ndorobo, the wild hunter-savages of the wilderness, who are more primitive in their ways of life than any other tribes of this region. They live on honey and the flesh of the wild beasts they kill; they are naked, with few and rude arms and utensils; and, in short, carry on existence as our own ancestors did at a very early period of palæolithic time. Around this cave were many bones. Within it were beds of grass, and a small roofed enclosure of thorn bushes for the dogs. Fire sticks had been left on the walls, to be ready when the owners' wanderings again brought them back to the cave; and also very curious soup sticks, each a rod with one of the vertebra of some animal stuck on the end,



and designed for use in stirring their boiled meat.

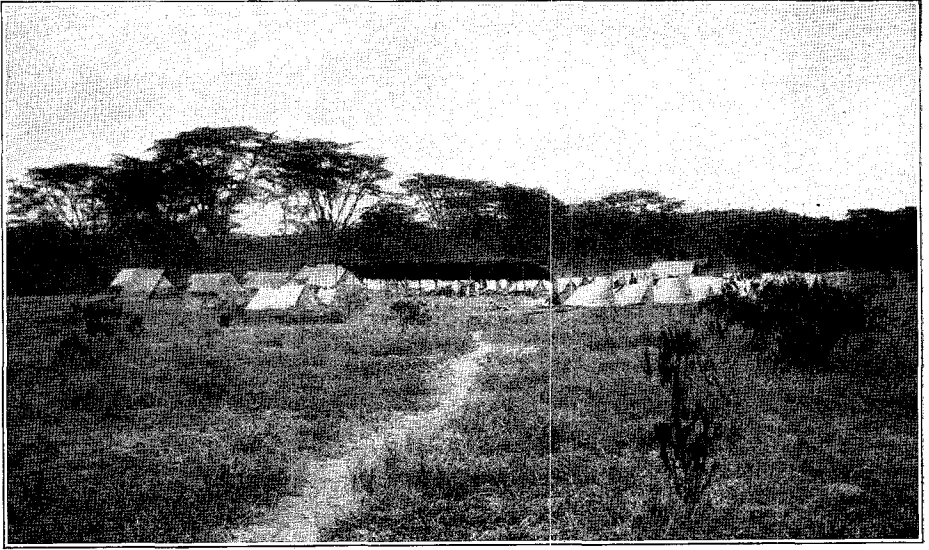
From our camp on the Guaso Nyero we trekked in a little over four days to a point on Lake Naivasha where we intended to spend some time. The first two days were easy travelling, the porters not being pressed and there being plenty of time in the afternoons to pitch camp comfortably; here the

wagons left us with their loads of hides and horns and spare baggage. The third day we rose long before dawn, breakfasted, broke camp, and were off just at sunrise. There was no path; at one time we followed game trails, at another the trails made by the Masai sheep and cattle, and again we might make our own trail. We had two Masai guides, tireless runners, as graceful



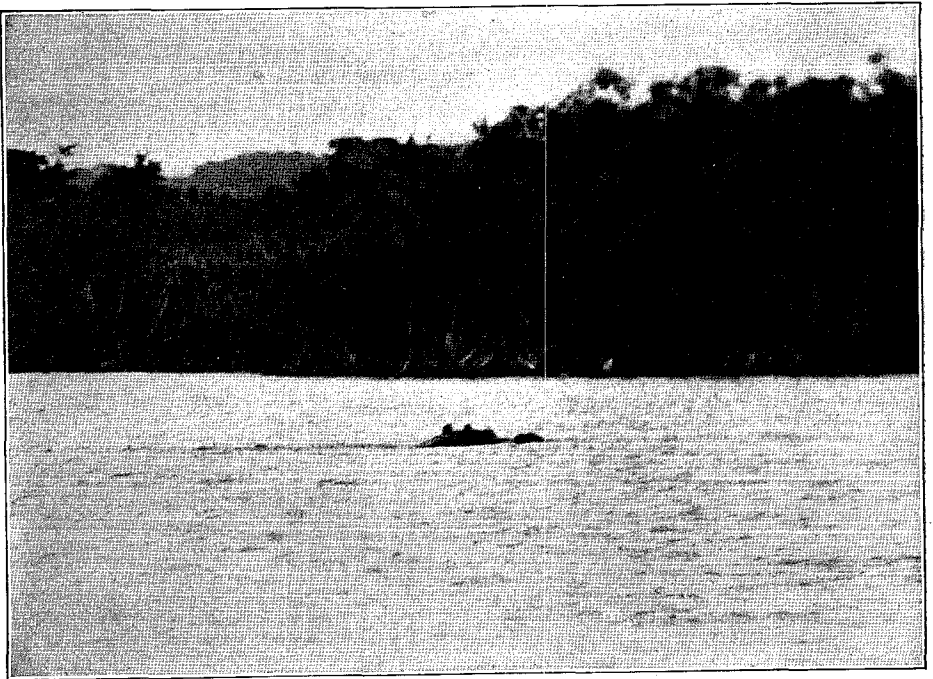
Mr. Roosevelt and Cuninghame discussing the next few days' march, over a wildebeest shot by Mr. Roosevelt.

From a photograph by Kermit Roosevelt.



Camp at Lake Naivasha.  
From a photograph by Edmund Heller.

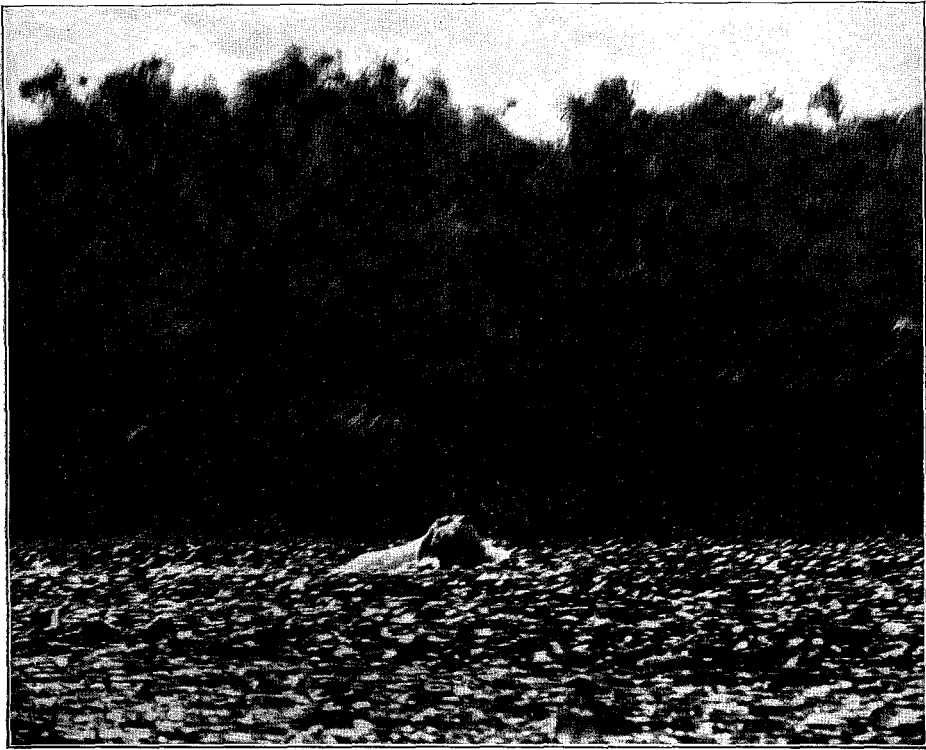
and sinewy as panthers; they helped us; which it was hard to place with exactness. but Cuninghame had to do most of the We had seen that each porter had his water pathfinding himself. It was a difficult bottle full before starting; but, though will- country, passable only at certain points, ing, good-humored fellows, strong as bulls,



What one has to shoot at when after hippo on water.  
From a photograph by Kermit Roosevelt.

in forethought they are of the grasshopper type; and all but a few exhausted their supply by mid-afternoon. At this time we were among bold mountain ridges, and here we struck the kraal of some Masai, who watered their cattle at some spring pools, three miles to one side, up a valley. It was too far for the heavily laden porters; but we cantered our horses thither and let them

into what looked like rivers; the thick grass grew waist high. It looked like a well-watered country; but it was of porous, volcanic nature, and the soil was a sieve. After nightfall we came to where we hoped to find water; but there was not a drop in the dried pools; and we had to make a waterless camp. A drizzling rain had set in, enough to wet everything, but not enough



Mr. Roosevelt's hippo charging open-mouthed.—Page 531.

From a photograph by Kermit Roosevelt.

drink their fill; and then cantered along the trail left by the safari until we overtook the rear men just as they were going over the brink of the Mau escarpment. The scenery was wild and beautiful; in the open places the ground was starred with flowers of many colors; we rode under vine-tangled archways through forests of strange trees.

Down the steep mountain side went the safari, and at its foot struck off nearly parallel to the high ridge. On our left the tree-clad mountain side hung above us; ravines, with mimosas clustering in them, sundered the foot-hills, and wound until they joined

to give any water for drinking. It was eight o'clock before the last of the weary, thirsty burden-carriers stumbled through the black, boulder-strewn ravine on whose farther side we were camped, and threw down his load among his fellows, who were already clustered around the little fires they had started in the tall grass. We slept as we were, and comfortably enough; indeed, there was no hardship for us white men, with our heavy overcoats, and our food and water—which we shared with our personal attendants; but I was uneasy for the porters, as there was another long and exhausting day's march ahead. Before sunrise we



started; and four hours later, in the bottom of a deep ravine, Cuninghame found a pool of green water in a scooped-out cavity in the rock. It was a pleasant sight to see the thirsty porters drink. Then they sat down, built fires and boiled their food; and went on in good heart.

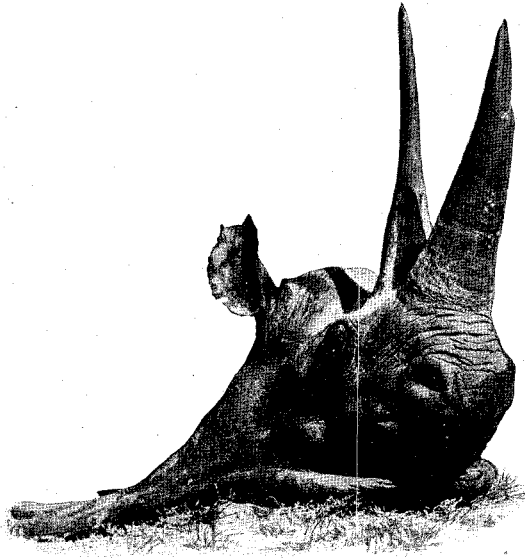
Two or three times we crossed singularly beautiful ravines, the trail winding through narrow clefts that were almost tunnels, and along the brinks of sheer cliffs, while the green mat of trees and vines was spangled with many colored flowers. Then we came to barren ridges and bare, dusty plains; and at nightfall pitched camp near the shores of Lake Naivasha. It is a lovely sheet of water, surrounded by hills and mountains, the shores broken by rocky promontories, and indented by papyrus-fringed bays. Next morning we shifted camp four miles to a place on the farm, and near the house, of the Messrs. Attenborough, settlers on the shores of the lake, who treated us with the most generous courtesy and hospitality—as, indeed, did all the settlers we met. They were two brothers; one had lived twenty years on the Pacific Coast, mining in the Sierras, and the other had just retired from the British navy, with the rank of commander; they were able to turn their hands to anything, and were just the men for work in a new country—for a new country is a poor place for the weak and incompetent, whether of body or mind. They had a steam launch and a big heavy row-boat, and they most kindly and generously put both at our disposal for hippo hunting.

At this camp I presented the porters with twenty-five sheep, as a recognition of their good conduct and hard work; whereupon

they improvised long chants in my honor, and feasted royally.

We spent one entire day with the row-boat in a series of lagoons near camp, which marked an inlet of the lake. We did not get any hippo, but it was a most interesting day. A broad belt of papyrus fringed the lagoons and jutted out between them. The straight green stalks with their feathery

heads rose high and close, forming a mass so dense that it was practically impenetrable save where the huge bulk of the hippos had made tunnels. Indeed, even for the hippos it was not readily penetrable. The green monotony of a papyrus swamp becomes wearisome after a while; yet it is very beautiful, for each reed is tall, slender, graceful, with its pale flowering crown; and they are typical



Rhino shot from Salt-marsh camp, of the "Keitloa" type with rear horn longer than front horn.—Page 520.

From a photograph by Edmund Heller.

of the tropics, and their mere sight suggests a vertical sun and hot, steaming swamps, where great marsh beasts feed and wallow and bellow, amidst a teeming reptilian life. A fringe of papyrus here and there adds much to the beauty of a lake, and also to the beauty of the river pools, where clumps of them grow under the shade of the vine-tangled tropical trees.

The open waters of the lagoons were covered with water-lilies, bearing purple or sometimes pink flowers. Across the broad lily pads ran the curious "lily trotters," or jacanas, richly colored birds, with toes so long and slender that the lily pads would support them without sinking. They were not shy, and their varied coloring—a bright chestnut being the most conspicuous hue—and singular habits made them very conspicuous. There was a wealth of bird life in the lagoons. Small gulls, somewhat

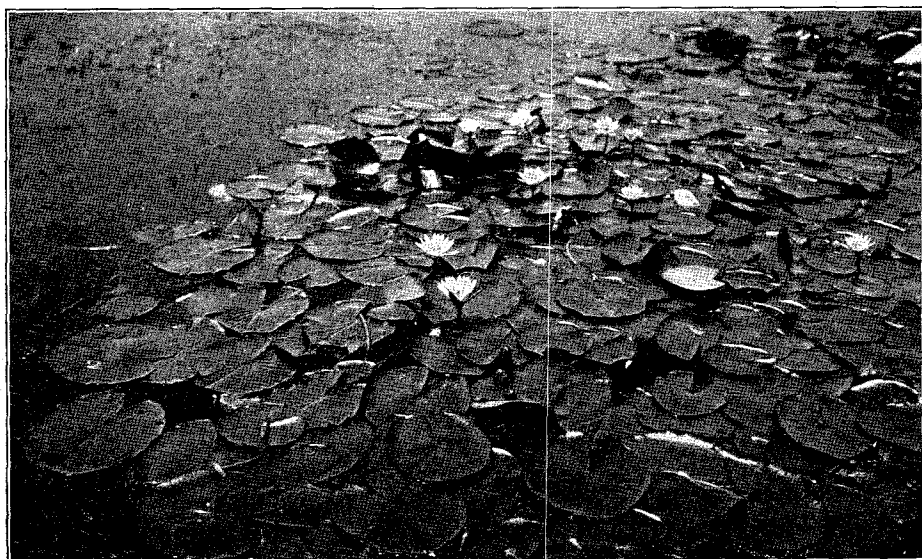


Bringing the big bull hippo to shore.  
From a photograph by Edmund Heller.



like our black-headed gull, but with their hoods gray, flew screaming around us. Black and white kingfishers, tiny red-billed kingfishers, with colors so brilliant that they flashed like jewels in the sun, and brilliant green bee-eaters with chestnut breasts perched among the reeds. Spur-winged plover clamored as they circled overhead near the edges of the water. Little rails and red-legged water hens threaded the edges of the papyrus, and grebes dived in the open water. A giant heron, the

its edge; toward evening they splashed and waded among the water-lilies, tearing them up with their huge jaws; and during the night they came ashore to feed on the grass and land plants. In consequence those killed during the day, until the late afternoon, had their stomachs filled, not with water plants, but with grasses which they must have obtained in their night journeys on dry land. At night I heard the bulls bellowing and roaring. They fight savagely among themselves, and where they are not



Water-lilies, Lake Naivasha.

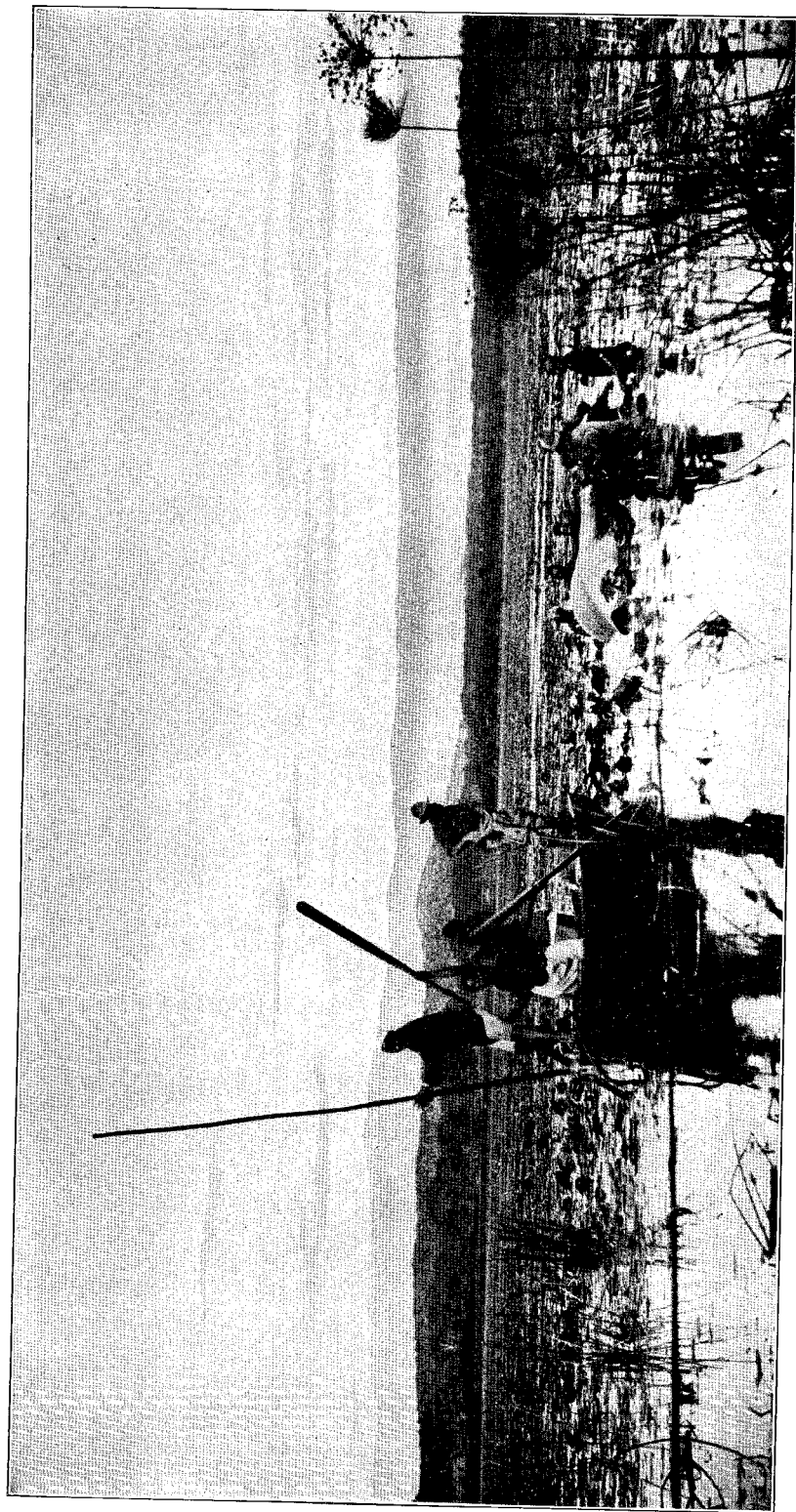
From a photograph by Edmund Heller.

Goliath, flew up at our approach; and there were many smaller herons and egrets, white or particolored. There were small, dark cormorants, and larger ones with white throats; and African ruddy ducks, and teal and big yellow-billed ducks, somewhat like mallards. Among the many kinds of ducks was one which made a whistling noise with its wings as it flew. Most plentiful of all were the coots, much resembling our common bald-pate coot, but with a pair of horns or papillæ at the hinder end of the bare frontal space.

There were a number of hippo in these lagoons. One afternoon after four o'clock I saw two standing half out of water in a shallow, eating the water-lilies. They seemed to spend the fore part of the day sleeping or resting in the papyrus or near

molested, and the natives are timid, they not only do great damage to the gardens and crops, trampling them down and shovelling basketfuls into their huge mouths, but also become dangerous to human beings, attacking boats or canoes in a spirit of wanton and ferocious mischief. At this place, a few weeks before our arrival, a young bull, badly scarred, and evidently having been mishandled by some bigger bull, came ashore in the daytime and actually attacked the cattle, and was promptly shot in consequence. They are astonishingly quick in their movements for such shapeless-looking, short-legged things. Of course they cannot swim in deep water with anything like the speed of the real swimming mammals, nor move on shore with the agility and speed of the true denizens of





Towing in bull hippo, Lake Naivasha.  
From a photograph by J. Alden Loring.

the land; nevertheless, by sheer muscular power and in spite of their shape, they move at an unexpected rate of speed both on dry land and in deep water; and in shallow water, their true home, they gallop very fast on the bottom, under water. Ordinarily only their heads can be seen, and they must be shot in the brain. If they are found in a pool with little cover, and if the

game. My shot was at the head of a hippo facing me in a bay about a hundred yards off, so that I had to try to shoot very low between the eyes; the water was smooth, and I braced my legs well and fired offhand. I hit him, but was confident that I had missed the brain, for he lifted slightly, and then went under, nose last; and when a hippo is shot in the brain the head usually goes

under nose first. An exasperating feature of hippo shooting is that, save in exceptional circumstances, where the water is very shallow, the animal sinks at once when killed outright, and does not float for one or two or three hours; so that one has to wait that length of time before finding out whether the game has or has not been bagged. On this occasion we never saw a sign of the animal after I fired, and as it seemed impossible that in that situation the hippo could get off unobserved, my companions thought I had killed him; I thought not, and unfortunately my judgment proved to be correct.

Another day, in the launch, I did much the same thing. Again the hippo was a long distance off, only his head appearing, but unfortunately not in profile, much the best position for a shot; again I hit him; again he sank and, look as hard as we could, not a sign of him appeared, so that every one was sure he was dead; and again no body ever floated. But on this day Kermit got his hippo. He hit it first in the head, merely a flesh wound; but the startled creature then rose high in the water and he shot it in the lungs. It now found difficulty in staying under, and continually



Cuninghame coming ashore on boy's back, Lake Naivasha.

From a photograph by J. Alden Loring.

shots can be taken close up, from firm ground, there is no sport whatever in killing them. But the brain is small and the skull huge, and if they are any distance off, and especially if the shot has to be taken from an unsteady boat, there is ample opportunity to miss.

On the day we spent with the big row-boat in the lagoons both Kermit and I had shots; each of us hit, but neither of us got his

rose to the surface with a plunge like a porpoise, going as fast as it could toward the papyrus. After it we went, full speed, for once in the papyrus we could not have followed it; and Kermit finally killed it, just before it reached the edge of the swamp, and, luckily, where the water was so shallow that we did not have to wait for it to float, but fastened a rope to two of its turtle-like legs, and towed it back forthwith.



Mr. Roosevelt's big bull hippo.  
From a photograph by Kermit Roosevelt.

There were others in the lake. One day we saw two playing together near the shore; and at first we were all of us certain that it was some big water snake. It was not until we were very close that we made out the supposed one big snake to be two others; it was rather interesting, as giving one of the explanations of the stories that always appear about large water snakes, or similar monsters, existing in almost every lake of any size in a wild country. On another day I shot another near shore; he turned over and over, splashing and tumbling; but just as we were about to grasp him, he partially recovered and dived to safety in the reeds.

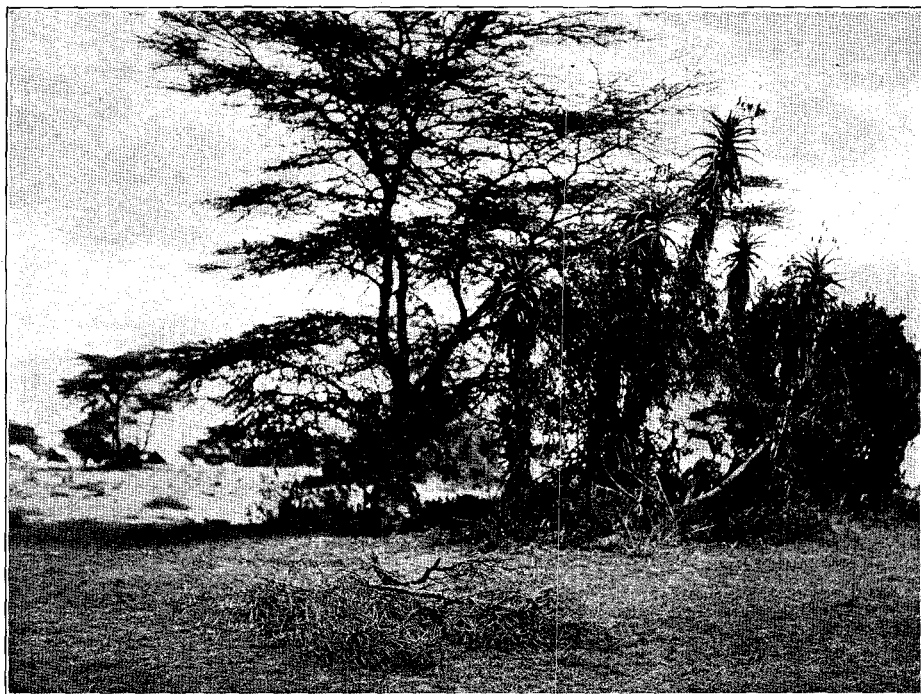
On the second day we went out in the launch I got my hippo. We steamed down the lake, not far from the shore, for over ten miles, dragging the big, clumsy row-boat, in which Cuninghame had put three of our porters who knew how to row. Then we spied a big hippo walking entirely out of water on the edge of the papyrus, at the farther end of a little bay which was filled with water-lilies. Thither we steamed, and when a few rods from the bay, Cuning-

hame, Kermit, and I got into the row-boat; Cuninghame steered, Kermit carried his camera, and I steadied myself in the bow with the little Springfield rifle. The hippo was a self-confident, truculent beast; it went under water once or twice, but again came out to the papyrus and waded along the edge, its body out of water. We headed toward it, and thrust the boat in among the water-lilies, finding that the bay was shallow, from three to six feet deep. While still over a hundred yards from the hippo, I saw it turn as if to break into the papyrus, and at once fired into its shoulder, the tiny pointed bullet smashing the big bones. Round spun the great beast, plunged into the water, and with its huge jaws open came straight for the boat, floundering and splashing through the thick-growing water-lilies. I think that its chief object was to get to deep water; but we were between it and the deep water, and instead of trying to pass to one side it charged straight for the boat, with open jaws, bent on mischief. But I hit it again and again with the little sharp-pointed bullet. Once



I struck it between neck and shoulder; once, as it rushed forward with its huge jaws stretched to their threatening utmost, I fired right between them, whereat it closed them with the clash of a sprung bear trap; and then, when under the punishment it swerved for a moment, I hit it at the base of the ear, a brain shot which dropped it in its tracks. Meanwhile Kermit was busily taking photos of it as it charged, and,

trich feathers. The two Kikins were unconsciously entertaining companions. Without any warning they would suddenly start a song or chant, usually an impromptu recitative of whatever at the moment interested them. They chanted for half an hour over the feat of the "B'wana Makuba" (great master, or chief—my name) in killing the hippo; laying especial stress upon the quantity of excellent meat it would fur-



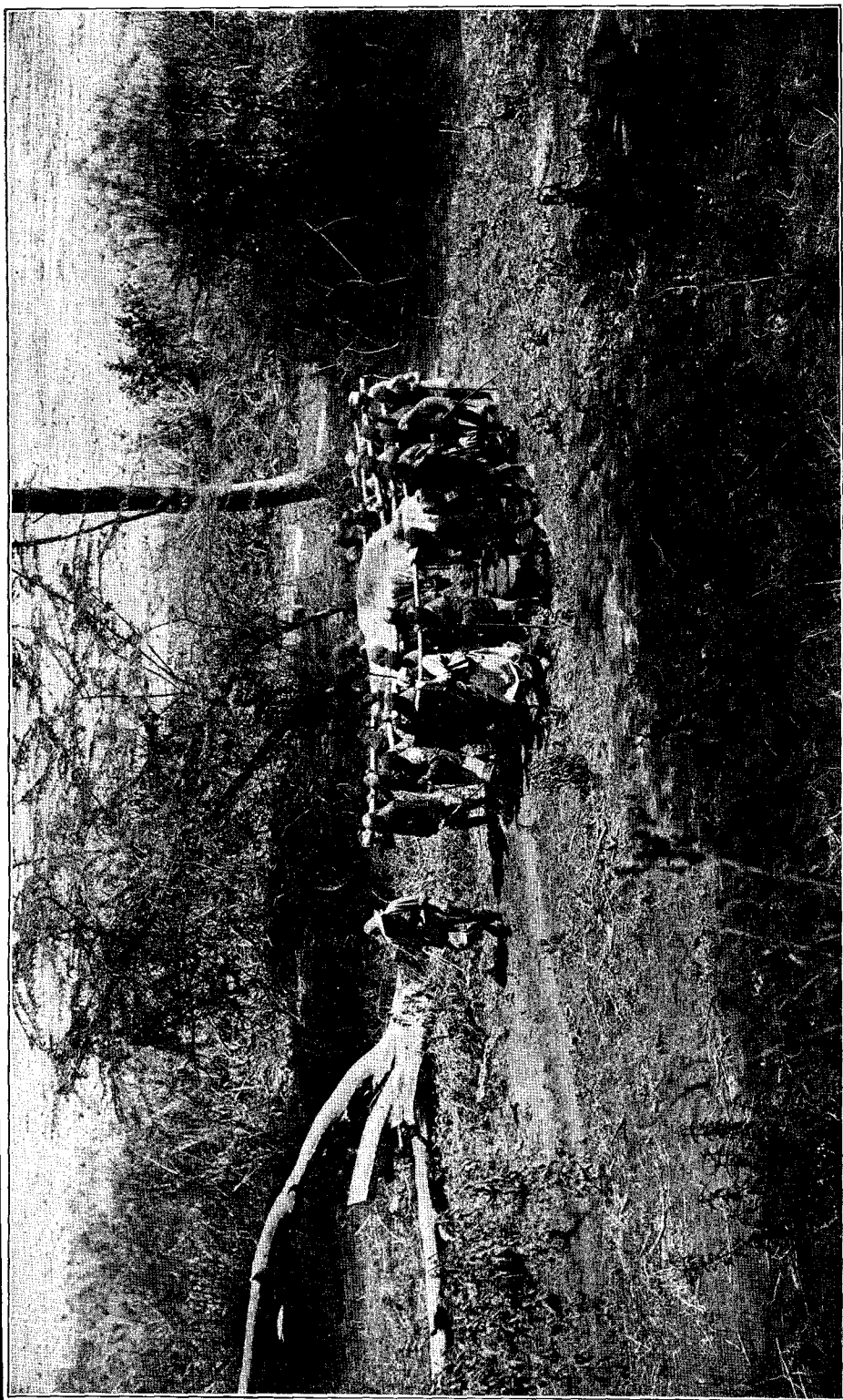
Giant aloes, Salt-marsh,  
From a photograph by Edmund Heller.

as he mentioned afterward, until it was dead he never saw it except in the "finder" of his camera. The water was so shallow where I had killed the hippo that its body projected slightly above the surface. It was the hardest kind of work getting it out from among the water-lilies; then we towed it to camp behind the launch.

The engineer of the launch was an Indian Moslem. The fireman and the steersman were two half-naked and much-ornamented Kikins. The fireman wore a blue bead chain on one ankle, a brass armband on the opposite arm, a belt of short steel chains, a dingy blanket (no loin cloth), and a skull cap surmounted by a plume of os-

nish, and how very good the eating would be. Usually one would improvise the chant, and the other join in the chorus. Sometimes they would solemnly sing complimentary songs to one another, each in turn chanting the manifold good qualities of his companion.

Around this camp were many birds. The most noteworthy was a handsome gray eagle owl, bigger than our great horned owl, to which it is closely akin. It did not hoot or scream, its voice being a kind of grunt, followed in a second or two by a succession of similar sounds, uttered more quickly and in a lower tone. These big owls frequently came round camp after dark, and at first their notes completely



Bringing the skin of the large hippo to camp.  
From a photograph by Edmund Heller.



puzzled me, as I thought they must be made by some beast. The bulbuls sang well. Most of the birds were in no way like our home birds.

Loring trapped quantities of mice and rats, and it was curious to see how many of them had acquired characters which

Heller trapped various beasts; beautifully marked genets and a big white-tailed mongoose which was very savage. But his most remarkable catch was a leopard. He had set a steel trap, fastened to a loose thorn branch, for mongoose, civets, or jackals; it was a number two Blake, such as in Amer-



Johari and marabou stork.

From a photograph by Kermit Roosevelt.

caused them superficially to resemble American animals with which they had no real kinship. The sand rats that burrowed in the dry plains were in shape, in color, eyes, tail, and paws strikingly like our pocket gophers, which have similar habits. So the long-tailed gerbilles, or gerbille-like rats, resembled our kangaroo rats; and there was a blunt-nosed, stubby-tailed little rat superficially hardly to be told from our rice rat. But the most characteristic rodent, the big long-tailed, jumping springhaas, resembled nothing of ours; and there were tree rats and spiny mice. There were gray monkeys in the trees around camp, which the naturalists shot.

ica we use for coons, skunks, foxes, and perhaps bobcats and coyotes. In the morning he found it gone, and followed the trail of the thorn branch until it led into a dense thicket, from which issued an ominous growl. His native boy shouted "simba"; but it was a leopard, not a lion. He could not see into the thicket; so he sent back to camp for his rifle, and when it came he climbed a tree and endeavored to catch a glimpse of the animal. He could see nothing, however; and finally fired into the thicket rather at random. The answer was a furious growl, and the leopard charged out to the foot of the tree, much hampered by the big thorn branch. He put a bullet



into it, and back it went, only again to come out and to receive another bullet; and he killed it. It was an old male, in good condition, weighing one hundred and twenty-six pounds. The trap was not big enough to contain his whole paw, and he had been caught firmly by one toe. The thorn bush acted as a drag, which prevented him from going far, and yet always yielded somewhat when he pulled. A bear thus caught would have chewed up the trap or else pulled his foot loose, even at the cost of sacrificing the toe; but the cats are more sensitive to pain. This leopard was smaller than any full-grown male cougar I have ever killed, and yet cougars often kill game rather heavier than leopards usually venture upon; yet very few cougars indeed would show anything like the pluck and ferocity shown by this leopard, and characteristic of its kind.

Kermit killed a waterbuck of a kind new to us, the sing-sing. He also killed two porcupines and two baboons. The porcupines are terrestrial animals, living in burrows to which they keep during the daytime. They are much heavier than, and in all their ways totally different from, our sluggish tree porcupines. The baboons were numerous around this camp, living

both among the rocks and in the tree tops. They are hideous creatures. They ravage the crops and tear open new-born lambs to get at the milk inside them; and where the natives are timid and unable to harm them, they become wantonly savage and aggressive and attack and even kill women and children. In Uganda, Cuninghame had once been asked by a native chief to come to his village and shoot the baboons, as they had just killed two women, badly bitten several children, and caused such a reign of terror that the village would be abandoned if they were not killed or intimidated. He himself saw the torn and mutilated bodies of the dead women; and he stayed in the village a week, shooting so many baboons that the remainder were thoroughly cowed. Baboons and boars are the most formidable of all foes to the dogs that hunt them—just as leopards are of all wild animals those most apt to prey on dogs. A baboon's teeth and hands are far more formidable weapons than those of any dog, and only a very few wholly exceptional dogs of huge size, and great courage and intelligence, can single-handed contend with an old male. But we saw a settler whose three big terriers could themselves kill a full-grown



Heller's leopard.

From a photograph by Edmund Heller.



African yew-trees.

From a photograph by Edmund Heller.

warthog boar; an almost unheard-of feat. They backed one another up with equal courage and adroitness, their aim being for two to seize the hind legs; then the third, watching his chance, would get one foreleg, when the boar was speedily thrown, and when weakened, killed by bites in his stomach.

Hitherto we had not obtained a bull hippo, and I made up my mind to devote myself to getting one, as otherwise the group for the Museum would be incomplete. Save in exceptional cases I do not think hippo hunting, after the first one has been obtained, a very attractive sport, because usually one has to wait an hour before it is possible to tell whether or not a shot has been successful, and also because, a portion of the head being all that is usually visible, it is exceedingly difficult to say whether the animal seen is a bull or a cow. As the time allowed for a shot is very short, and any hesitation probably insures the animal's escape, this means that two or three hippo may be killed, quite unavoidably, before the right specimen is secured. Still there may be interesting and

exciting incidents in a hippo hunt. Cuninghame, the two Attenboroughs, and I started early in the launch, towing the big, clumsy row-boat, with as crew three of our porters who could row. We steamed down the lake some fifteen miles to a wide bay, indented by smaller bays, lagoons, and inlets, all fringed by a broad belt of impenetrable papyrus, while the beautiful purple lilies, with their leathery-tough stems and broad surface-floating leaves, filled the shallows. At the mouth of the main bay we passed a floating island, a mass of papyrus perhaps a hundred and fifty acres in extent, which had been broken off from the shore somewhere, and was floating over the lake as the winds happened to drive it.

In an opening in the dense papyrus masses we left the launch moored, and Cuninghame and I started in the row-boat to coast the green wall of tall, thick-growing, feather-topped reeds. Under the bright sunshine the shallow flats were alive with bird life. Gulls, both the gray-hooded and the black-backed, screamed harshly overhead. The chestnut-colored lily trot-

ters tripped daintily over the lily pads, and when they flew, held their long legs straight behind them, so that they looked as if they had tails like pheasants. Sacred ibis, white with naked black head and neck, stalked along the edge of the water, and on the bent papyrus small cormorants and herons perched. Everywhere there were coots and ducks, and crested grebes, big and little. Huge white pelicans floated on the water. Once we saw a string of flamingoes fly by, their plumage a wonderful red.

Immediately after leaving the launch we heard a hippo, hidden in the green fastness on our right, uttering a meditative soliloquy, consisting of a succession of squealing grunts. Then we turned a point, and in a little bay saw six or eight hippo, floating with their heads above water. There were two much bigger than the others, and Cuninghame, while of course unable to be certain, thought these were probably males. The smaller ones, including a cow and her calf, were not much alarmed, and floated quietly, looking at us, as we cautiously paddled and drifted nearer; but the bigger ones dove and began to work their way past us toward deep water. We could trace their course by the twisting of the lily pads. Motionless the rowers lay on their oars; the line of moving lily pads showed that one of the big hippo was about to pass the boat; suddenly the waters opened close at hand and a monstrous head appeared. "Shoot," said Cuninghame; and I fired into the back of the head just as it disappeared. It sank out of sight without a splash, almost without a ripple; the lily pads ceased twisting; a few bubbles of air rose to the surface; evidently the hippo lay dead underneath. Poling to the spot, we at once felt the huge body with our oar blades. But, alas, when the launch came round, and we raised the body, it proved to be that of a big cow.

So I left Cuninghame to cut off the head for the Museum, and started off by myself in the boat with two rowers, neither of whom spoke a word of English. For an hour we saw only the teeming bird life. Then, in a broad, shallow lagoon, we made out a dozen hippo, two or three very big. Cautiously we approached them, and when seventy yards off I fired at the base of the ear of one of the largest. Down went every head, and utter calm succeeded. I had marked the spot where the one at

which I shot had disappeared, and thither we rowed. When we reached the place, I told one of the rowers to thrust a pole down and see if he could touch the dead body. He thrust according, and at once shouted that he had found the hippo; in another moment his face altered, and he shouted much more loudly that the hippo was alive. Sure enough, bump went the hippo against the bottom of the boat, the jar causing us all to sit suddenly down—for we were standing. Another bump showed that we had again been struck; and the shallow, muddy water boiled, as the huge beasts, above and below the surface, scattered every which way. Their eyes starting, the two rowers began to back water out of the dangerous neighborhood, while I shot at an animal whose head appeared to my left, as it made off with frantic haste; for I took it for granted that the hippo at which I had first fired (and which was really dead) had escaped. This one disappeared as usual, and I had not the slightest idea whether or not I had killed it. I had small opportunity to ponder the subject, for twenty feet away the water bubbled and a huge head shot out facing me, the jaws wide open. There was no time to guess at its intentions, and I fired on the instant. Down went the head, and I felt the boat quiver as the hippo passed underneath. Just here the lily pads were thick; so I marked its course, fired as it rose, and down it went. But on the other quarter of the boat a beast, evidently of great size—it proved to be a big bull—now appeared, well above water; and I put a bullet into its brain.

I did not wish to shoot again unless I had to, and stood motionless, with the little Springfield at the ready. A head burst up twenty yards off, with a lily pad plastered over one eye, giving the hippo an absurd resemblance to a discomfited prize-fighter, and then disappeared with great agitation. Two half-grown beasts stupid from fright appeared, and stayed up for a minute or two at a time, not knowing what to do. Other heads popped up, getting farther and farther away. By degrees everything vanished, the water grew calm, and we rowed over to the papyrus, moored ourselves by catching hold of a couple of stems, and awaited events. Within an hour four dead hippos appeared: a very big bull and three big cows. Of course, I would not have



shot the latter if it could have been avoided; but under the circumstances I do not see how it was possible to help it. The meat was not wasted; on the contrary it was a god-send, not only to our own porters, but to the natives round about, many of whom were on short commons on account of the drought.

Bringing over the launch we worked until after dark to get the bull out of the difficult position in which he lay. It was nearly seven o'clock before we had him fixed for towing on one quarter, the row-boat towing on the other, by which time two hippos were snorting and blowing within a few yards of us, their curiosity much excited as to what was going on. The night was overcast; there were drenching rain squalls, and a rather heavy sea was running, and I did not get back to camp until after three. Next day the launch fetched in the rest of the hippo meat.

From this camp we went into Naivasha, on the line of the railway. In many places the road was beautiful, leading among the huge yellow trunks of giant thorn trees, the ground rising sheer on our left as we cantered along the edge of the lake. We passed impalla, tommies, zebra, and wart-hog; and in one place saw three waterbuck cows feeding just outside the papyrus at high noon. They belonged to a herd that lived in the papyrus and fed on the grassy flats outside; and their feeding in the open exactly at noon was another proof of the fact that the custom of feeding in the early morning and late evening is with most game entirely artificial and the result of fear of man. Birds abounded. Parties of the dark-colored ant-eating wheatear sang sweetly from trees and bushes, and even from the roofs of the settlers' houses. The tri-colored starlings—black, white, and chestnut—sang in the air, as well as when perched on twigs. Stopping at the government farm (which is most interesting; the results obtained in improving the native sheep, goats, and cattle by the use of imported thoroughbred bulls and rams have been astonishingly successful) we saw the little long-tailed, red-billed, black and white

whydahs flitting around the out-buildings as familiarly as sparrows. Water birds of all kinds thronged the meadows bordering the papyrus, and swam and waded among the water-lilies; sacred ibis, herons, beautiful white spoonbills, darters, cormorants, Egyptian geese, ducks, coots, and water hens. I got up within rifle range of a flock of the queer ibis stork, black and white birds with curved yellow bills, naked red faces, and wonderful purple tints on the edges and the insides of the wings; with the little Springfield I shot one on the ground and another on the wing, after the flock had risen.

That night Kermit and Dr. Mearns went out with lanterns and shot-guns, and each killed one of the springhaas, the jumping hares, which abounded in the neighborhood. These big, burrowing animals, which progress by jumping like kangaroos, are strictly nocturnal, and their eyes shine in the glare of the lanterns.

Next day I took the Fox gun, which had already on ducks, guinea-fowl, and francolin, shown itself an exceptionally hard-hitting and close-shooting weapon, and collected various water birds for the naturalists; among others, a couple of Egyptian geese. I also shot a white pelican with the Springfield rifle; there was a beautiful rosy flush on the breast.

Here we again got news of the outside world. While on safari the only newspaper which any of us ever saw was the *Owego Times*, which Loring, in a fine spirit of neighborhood loyalty, always had sent to him in his mail. To the Doctor, by the way, I had become knit in a bond of close intellectual sympathy ever since a chance allusion to "William Henry's Letters to His Grandmother" had disclosed the fact that each of us, ever since the days of his youth, had preserved the bound volumes of "Our Young Folks," and moreover firmly believed that there never had been its equal as a magazine, whether for old or young; even though the Plancus of our golden consulship was the not wholly happy Andrew Johnson.

# THE INCREASED COST OF LIVING

By J. Laurence Laughlin

## I



HE price of any article is a statement of its relation to some standard like gold. Therefore, prices may vary for causes affecting either gold or the articles compared with gold. The whole price problem has thus two distinct sides: (1) a study of the influences directly touching the demand and supply of gold itself, and (2) the influences directly touching the demand and supply of goods, and their expenses of production. It would be one-sided and inadequate to reason that prices have risen solely from the new supply of gold, without taking into account the new demand for gold; and it would be still more inadequate to reason solely from influences affecting gold, and disregard the many potent influences working directly on the conditions under which goods are produced and marketed. It will be our purpose, then, to study the causes affecting the recent rise in prices, by first presenting the forces working directly on gold, and by later unfolding the forces operating on the goods themselves.

## II

WHEN Orpheus was leading Eurydice back to earth, although forbidden he looked back at her, and she was lost to him forever. In order to shield the tariff, politicians and men high in office have already determined to assign the cause of our high prices to the abundance of gold. If, however, they dare to look back to the period from 1873 to 1890, they will find their favorite theory ruthlessly snatched away from them. Inexorable logic and the facts are against them, as well as against those theorists who have not studied all of the case. To get light on our problem, let us contrast the period of 1875-1890 with the later period of 1890-1908, the facts of which in regard to

prices and the production of gold are presented in Diagram I.

Before doing so, attention should be called to the fact that some writers carelessly reason directly from the recent large annual production of gold to the recent contemporary rise of prices. This is an old fallacy. The new supply should be compared with the total stock of gold in existence. The total available stock is not—as it is, for instance, in the case of wheat—the annual supply, but the total product in all past years, less the amount lost by accident, abrasion, or destruction in the arts. Owing to its durability the total stock is constantly increasing, and as we approach the present time the annual production, even though large, bears a constantly smaller ratio to the total supply. Then, to change the value of the whole stock, the new supply must be large—not absolutely, but—in relation to the total world's supply. A great rainfall in France may disastrously raise the level of the Seine; but it will not perceptibly raise the level of the Atlantic Ocean. It takes a long time, moreover, for an increasing supply of gold to make its influence felt on the value of the total stock. It may be months after heavy rains in Abyssinia before the water rises in the lower Nile in Egypt. That is, changes in prices due to changes in the value of the total stock of gold in the world, under the influence of new production, must necessarily be slow and gradual. Serious and rapid changes of prices, therefore, must be due to other causes than gold—that is, to causes directly affecting the commodities themselves. Keeping this point in mind, we may now proceed to contrast the two periods.

(1) To 1850, the total production of gold was \$3,158,000,000, from which we should deduct for destruction in the arts and in other ways enough to reduce the total supply to not more than \$2,500,000,000. In the years 1851-1875 the supply of gold was more than doubled; but the demands for it