

Natural History.

THE FOOD OF RAPACIOUS BIRDS.

Editor Forest and Stream:

It is to be feared that we shall get too much ahead in the matter of creating sympathy and protection for certain birds of well-merited ill repute. This matter is once more (as frequently heretofore) called to my attention by an article in your issue of March 1, under the above caption. I beg leave to note an exception on the part of the commonwealth *vs. Accipiter velox*. It is to be legitimately inferred from Mr. Swift's showing that this desperate villain should be protected by law. Judged by the contents of his stomach duly catalogued with all the precision of scientific record, he preys upon small birds and an occasional mouse, and is entitled to be under the special protection of law as a specialist in the destruction of that public nuisance the English sparrow. Knowing what I know of the sharp-shinned hawk, I infer that in the vicinity of Elmira, New York, he feeds on sparrows and mice on account of the scarcity of nobler game. Where the Virginia partridge abounds it is a fact within my personal knowledge and experience that this hawk is extremely destructive of this bird. I give as an instance of the deadly ferocity of its swoop, an occurrence I once witnessed. My brother and myself were shooting partridges when a covey was pointed by one of the dogs in a heavy bunch of tall ragweed, the other dog backing at close quarters. We had advanced to within twenty yards of the covey and were taking position for the shot, when we were startled by a rustling noise within a few feet of our heads, and in an instant the birds flushed with loud screams as a hawk plunged headlong into the bunch of weeds from which they darted forth in all directions. Instantly my brother, directing his first barrel at the hawk, killed it, and also killed a bird with his second barrel, while I directed my fire at the birds. On recovering the birds, the dog also retrieved the hawk and brought it in with a dead partridge in each claw. The hawk had entered one of the bird's throat and passed out the top of its skull, through the brain; the other bird was simply throttled, the foot being clenched in deadly grasp around its throat. I have no idea that the hawk could have taken wing with a full grown partridge in each foot, but this whole affair exhibits the destructiveness and power and great audacity of this hawk, well named *velox*, for I believe the arrowy speed of its deadly swoop is unequalled by any other hawk. I have often seen this hawk snatch poultry almost out of the lap of the shouting hen-granny in our Southern farmyards, and only last winter I knew of one of them pursuing a hen into the stable, and into the very stable where a man was grooming a horse. I take exception therefore to the sharp-skinned hawk being taken under the special protection of the law, in consideration of the Elmira bill of fare for rapaces—a bill of fare which does not vary in any important or constant relation to the variation of the species, and which probably represents the raptorial food supply of that vicinity much more accurately than it does the general habits of the species.

If any of your readers who are practical field sportsmen have any regard for my opinions, I suggest it to them, that they take knowledge of a group of hawks which (like Cain) any man finding them shall slay, viz., Cooper's hawk, the slate-colored hawk, the rough-legged hawk and, above all, the sharp-shinned hawk. I repeat it, that it is within my knowledge and experience that this group is especially and very destructive of our finest and most valued game birds, and our most beautiful insectivorous and sweetest song birds. I join in Mr. Swift's malediction of the fox and the great horned owl, but they are scarcely worse than the weasel and skunk, which both destroy. Of the abundance and destructiveness of this last, few persons I suspect entertain any adequate conception. As illustrating this point, I knew a case in which a gentleman, having lost many poultry, put out poisoned birds to kill the foxes which he accused of the theft; when he went to take up his baits in the morning he found no fox, but did find ten dead skunks.

M. G. ELLZEY, M.D.

[We do not quite understand our correspondent's classification. Does he place Cooper's, the sharp-shin and the rough-leg in the same group?]

THE HERMIT THRUSH.

NO one of ornithological tastes can afford to be without a fair knowledge of the thrushes. At the present stage of classification, they are the climax of bird-life. Whatever degree of importance may or may not attach to their peculiar points of structure, or however much any one may admire brilliancy of plumage in other species, in song, that most charming of all phases of bird life, the thrushes silence all others. One may prefer the varied range of the song of the wood thrush, singing as if he were in a profound and delightful reverie; another may prefer the marvellous tones of the Wilson, as he throws the forest into a sweet vibration of melody by his rather monotonous notes; and another still may prefer the sacred song of the hermit; but all must admit, that no other music of any three birds of the same family, can equal that of this trio. They are also harmless birds, adhering almost entirely to the forest, and so never disturbing the products of the husbandman. Moreover, they no doubt do much to aid in the preservation of our grand forests. With all their high endowments, they are of very humble habits. The ground, or at best the lower story of the woods, is the range of their abode; nor is there any evidence that the thrushes ever feel the need of fine clothes. Last but not least, their gentle, retiring ways win upon us.

To those who reside in the Middle or Southern States, no one of this family seems more shy and mysterious than the hermit. He is far too boreal in his habits to spend the summer with us, and he generally goes south of us to spend the winter. His vernal migrations are in advance of most birds, and so he steals a march on us; and his return in autumn is generally too late to find us in the woods. Thus persons generally fail to make the acquaintance of this most boreal of his race. Only recently have we learned how far north this bird may spend the winter, and how much cold he can brave. In and around the District of Columbia, the hermit may be found in sheltered places of the forest and around springs, at any time in winter; and in at least one

instance, the bird has been seen near the Potomac when the thermometer was a number of degrees below zero. I think, however, that it can scarcely be called common at this season of the year.

To see the nest of this species, built on the ground and set off with its fine clutch of greenish-blue eggs, one must generally go as far north as Maine or northern New York; and the same is true as to the locality of his song. Much to my surprise, however, I have heard the hermit sing as far south as Montgomery county, Maryland. One cold wet morning, the sixth of April, I heard it deliver a weak song barely intelligible; and again the 26th of October, I heard a similar song. No one unacquainted with this musical performance could have identified it; but to one who knows the movement of the melody, the peculiar modulation could not be mistaken.

One of the most charming items to a naturalist visiting northern New England or the Maritime Provinces in spring is the song of the hermit thrush (*Turdus palassii*). I reached Paradise, in the Annapolis Valley, Nova Scotia, during the night, and early the next morning climbed the South Mountain to listen to the birds. It was the beautiful morning of the second of June, 1833. As I passed through a swampy tract of alders, on nearing the foot of the mountain, I was greeted with the divine song of the hermit. It had been familiar to me in the days of childhood, and I had often recalled the unutterably sacred feelings it used to awaken; but never during the many years of my ornithological studies had I heard it, though I was quite familiar with the bird in its migrations. Stimulated by anticipation and with a vague conception formed from the descriptions of authors and the analogous songs of other thrushes I was prepared for the happiest impression. It was a moment never to be forgotten. The song begins with a note like the vowel *O*, passing through several intervals of the musical scale in a smooth upward slide and in a tone of indescribable melodiousness, and continues in a shake which gradually softens into silence, thus giving a most pleasing diminuendo. Put into syllables it is well represented by Mr. Burroughs's phrase, "*O-o-o-o, holy-holy-holy-holy*," and I sometimes thought I heard it say, "*O-o-o-o, seraph-seraph-seraph-seraph*." Again I could discover no suggestion of articulate language, but only that soul-language of pure melody which speaks directly to the heart without the ruder incumbrance of speech. With short pauses this diminuendo is repeated any number of times, but always on a different key and with different modulation. Now it is on the main chords, now on the intermediates, and now on the most delicately chosen and inspiring chromatics. When pitched high, the shake is through shorter intervals and in a weaker tone. The lower toned modulations are always the sweetest. Sometimes the tones are so soft as to sound far away, though the bird is quite near; and again the notes are very penetrating and may be heard from quite a distance, especially when aided by the echoes of tall dense forests. The tone of the melody is neither of flute, nor of hautboy, nor *vox-humana*, but something of immitable sweetness, and is never heard away from the fragrant arcades of the forest. "Spiritual serenity, or a refined, poetic, religious devotion, is indeed the sentiment of the song. He whose troubled spirit cannot be soothed or comforted, or whose religious feelings cannot be awakened by this song in twilight, must lack the full sense of hearing or that inner sense of the soul which catches nature's most significant voices." ("Our Birds in Their Haunts," pp. 491, 492. J. H. LANGILLE.

THE PRONG-HORN ANTELOPE.

BY R. W. SHUFELDT, C.M.Z.S.

IF the reader will refer back to my article upon THE PECCARY, where the U. S. National Museum "List" for the Order UNGULATA is given, it will be seen that a separate family, the ANTILOCAPRIDÆ, has been created to contain our Prong-horn Antelope. It is the only representative of this family, and consequently as *Antilocapra americana* it stands alone in its glory, nor is it at all likely that any species will be discovered hereafter to keep him company. Through the able investigations of Canfield, Bartlett, and more especially the very complete ones of Caton, it is now a well-known fact that the antelope periodically sheds its horns, and that these appendages are in due time by an epidermal growth reproduced again. But this process as here performed is a very different one from what we find to be the case in the true *Cervidae*, for in *Antilocapra* the horns when shed are semi-hollow, having overgrown for their basal moieties a bony core found on the frontal region of the skull over each eye. The study of the growth and shedding of these horns is a wonderfully interesting chapter in anatomy and physiology and should not be missed on any account by those engaged in such subjects. True antelope are not known to shed their horns, and this character alone would, in classification, place our Prong-horn directly between the *Cervidae* and the hollow-horned ruminants.

Furthermore, this animal, as we well know, has an anterior projecting prong on each horn, which is never the case in true antelope, and it likewise agrees with the hollow-horned ruminants, as the cattle, in possessing a gall-bladder, and in lacking the lachrymal sinus in front of each eye. As in the deer tribe, our female antelope possesses four functional mammae, *Capra* having but two. *Antilocapra* again, lacks the rudimentary hooflets, to the side and near of its cloven hoofs proper; nor has it the cervine tarsal and metatarsal glands, though *eleven* other small glandular structures are located in the integuments upon different parts of its body, the one on the middle of the back making the odd one. Exceedingly curious in character is the coat of our antelope, each hair being hollow, pointed, and *fragile*, that is, when once bent, it nearly breaks, and owing to its non-elasticity will not resume its straightness again. A close coat of fine white fur is found next the skin in this animal, and Caton has noticed that whenever it "is excited in play, by fright or by rage, the hair of the white patch on the rump rises up and assumes a more or less curved radial position, from a central point on each side of the vertebrae, as we sometimes see too radial points on the human head." I would add to this that the antelope also erects the hair this way when in great pain, as I have observed in animals of this species that I have wounded, and approached to kill. This erect and bristling bouquet of snow-white hair when thus displayed upon the round rump of this creature, is truly a beautiful sight, and once seen not likely to be forgotten.

The eyes of *Antilocapra* are very large, intensely black, winning, soft and expressive, and full of fire when the animal is irritated. Yet our antelope has but poor vision, and depends, so far as its senses are concerned, very largely upon its smell and hearing to avoid its enemies.

Female antelopes of this species also develop a short pair of horns, ranging from one to two inches long, and as one difference in the kids of this animal, we may detect the rudimentary horns of the male at birth but not those of the female. As a rule the female bears a pair of kids at a birth, but may have only one; all of those I have discovered leading young have always had two. Dr. Rothrock, several years ago, secured a very young deformed kid of this species, it having two heads joined back of the orbits. The prepared skull from this specimen used to be in the Museum of the Surgeon General's office of the Army, at Washington.

From my own studies and observation, and from my reading the works of others upon *Antilocapra*, I would say, so far as his classification goes, based upon the summation of his structure as we now understand it, that I take him to be more nearly related to certain antelopes than to any of the other ruminants, with a dash of the caprine, cervine and cavicornine elements still clinging to his organization, and with a strength of prominence exactly in proportion to the order in which I have named them; more of the goat than of the deer, more of the deer than of the *Bos*, and a great deal more of the antelope than all three of these put together.

Prong-bucks shun the forest, but occur from small bands to thousands on the rolling prairies from the tropics to the 54° north latitude, west of the Missouri River. They probably never passed east of the Mississippi; they always have been a plain lover, as are their nearest kin.

Several years ago I was hunting antelope some five or six miles north of Fort Fetterman in Wyoming. It was in early October, and my success during the day had been wretched, for I had been tantalized with the sight of a great many antelope, but had shot never a one. On my return, being mounted on an excellent hunting horse, I came to the top of a low rolling hill, when upon looking down in the shallow valley beyond it, there lay nine antelope upon the ground, and all within two hundred yards. At the sight of me they jumped up together, and you may imagine my surprise when I saw that the largest buck, a full-grown and splendid specimen, had a *jet black head and shoulders*, while the coloration of the hair of the rest of his body was normal. My brain actually reeled with excitement, for I would risk almost anything to obtain such a prize. They were rested, while myself and horse were nearly tired out with the day's ride, so I hardly knew what to do, especially as they soon began to walk off at a rapid pace. Having succeeded often in a charge under such circumstances, I resolved to try it, and at once plunged the spurs into the flanks of my weary horse; and the spurt we made surprised the antelope, and diminished the distance between us in a trice by a hundred yards. Here I rapidly dismounted with rifle in hand, and let my horse go. Meanwhile my game took start and actually flew up the side of a low, long and narrow hill, some one hundred and fifty yards beyond me, and instead of passing over its crest, tore along at a steam engine rate down the middle path of its summit. The old black-headed buck was in the lead, and the other eight followed in single file. I had a heavy rifle, made especially by the Government for officers of the Army, caliber .45, and with it I drew a fine sight on the object of all my desires, who was going at such a pace that one could not keep his legs individualized by sight; then I held fully three yards directly ahead of him, and pulled. Imagine my disappointment when I saw a noble doe directly in his wake, plunge one side, and roll down, stone dead, with the bullet through her heart. Dismounted as I was, and completely leg-weary, my last chance was gone, and from that day to this, I have never seen or even heard of such a specimen, and indeed, a melanocomous condition as that was in the antelope must be one of the rarest of freaks.

Never have I seen better ground to hunt the antelope on, though, than the Laramie Plains, where, on one occasion, over ten years ago, I slept out under a single blanket with a companion hunter, with the view of "giving them a brush" next day. It froze hard during the night, and in the morning when the light was still a deep gray, I sat up to rub my poor joints, and to bring my nearly congealed circulation into play again. The light was just sufficient to allow me to see three white and slowly moving objects not more than fifty yards from the foot of my bed. At this sight I naturally warmed up, and commenced rubbing my eyes instead of my stiffened joints. They were antelope; and quietly reaching out for my loaded rifle, I, in exactly the same instant of time, knocked down an old buck, and caused my snoring companion to jump clean out from under the blanket, with an alarm, which he said prevented him from hitting a single antelope during the day's hunt which followed. It is not often one can "sit up in bed" and shoot an antelope at peep of day. Before evening I had seven down, all "single stalks," which most people I think will consider a good bag.

The cutaneous glands of the Prong-horn, which I have already alluded to in a foregoing paragraph, are found both in buck and doe, and at all seasons are responsible for the indescribable and pungent odor which surrounds these animals. What the exact use of such an organ may be I am at present unable to state, but am inclined to think that the chief use of the glands is to protect the animals from swarms of troublesome insects, as gnats, mosquitoes and flies. Its short tail is useless for any such purpose, and these pests on the plains are truly frightful sometimes, and yet I have to see an antelope ever annoyed with them, while I have seen horses driven nearly distracted.

Where the skin is exposed on an antelope it is of a jetty black color, while where the hair grows it is of a bright flesh tint. For the most part the coloration of an adult specimen of this species is of a tawny ochre shade, being darker along the back and lighter on the sides. The animal is also handsomely set off with certain white areas, and black facings, distributed as I have drawn them in my figures illustrating this paper. Horns and hoofs are both coal black, although the apices of the former are often shaded off with a paler tint. Kids when first born never show the maculation so characteristic in the fawns of the true *Cervidae*, but are essentially colored like their parents, although of much paler shades where the tawny tints prevail.

Prong-horns in their feeding seem to confine themselves



A PAIR OF PRONG-HORN ANTELOPES (*A. americana*) MALES.—DRAWN BY THE AUTHOR FROM HIS OWN FIELD SKETCHES.

(The background adapted by the author from view in Hayden's Survey.)

to the various grasses growing on the prairies, and never eat the leaves of trees or any kinds of fruit. They are very fond of the "soda licks" so abundant in the most of the regions they inhabit, but will take common salt in lieu thereof, when kept in a state of domestication, as has been shown by Judge Caton. As pets they make extremely engaging ones, and in reality this is the only way we can fully study them, and as the habits and morphology of the species have as yet by no means been exhausted, it is earnestly to be hoped that both science and private individuals will make constant endeavors to study them by such methods.

Every one who has hunted the antelope is aware of its fleetness for a short spurt, how then it becomes fatigued and even sometimes captured. While at Fort Laramie, in the spring of 1877, I often saw these animals run down and taken with a good pack of gaunt and vigorous greyhounds. They make in the chase some truly wonderful horizontal springs, but fail utterly when they come to jump over anything over a yard or more high. During the rutting season old bucks fight each other with all the lusty courage of yore, while the females never lack the necessary spirit in stoutly defending their young against any danger that might threaten them. Hunters also know how to take advantage of the almost insane curiosity the animals show when approached by any strange object on his feeding grounds. The endeavor to inform himself on the salient points of a red flannel shirt, has cost many and many an antelope its life, and I doubt very much that any of them can tell a great deal about that garment to-day. But my space is well nigh expended, and yet I feel I have hardly touched upon the natural history of this, one of the most engaging animals of our entire mammalian fauna, and one so strictly American. Many parts of its structure still require the careful investigation of the anatomist, and Caton in speaking of its permanent preservation to students of the future, and its domestication, says, "We have an abund-

ance of territory well adapted to this purpose, now lying waste, and a limited appropriation, to be expended under the direction of the Smithsonian Institution, for instance, whose expenditure of the funds committed to its charge has been characterized by the soundest judgment and highest integrity, might promise success. What would we not give could we resuscitate some of those animals which were formerly abundant on our continent but have recently become extinct? The danger, if not the probability, is that our successors in the not distant future will make the same reflection in reference to the bison and prong buck, if not the moose and wapiti." This was penned by the hand of a man who looks far over the field; ten years ago the ink which committed those words to paper, dried. I am not the only naturalist that seconds this same sentiment to-day, and can point to the vast stretches of our western territorial domains, now richly bestrewn with the bleaching skeletons of our nearly extinct bison, to support the plea.

RABBITS AND ORCHARDS.—A writer in the *American Garden* recommends as a protection against rabbits "to rub the bark of the trees thoroughly with blood or grease, which makes it distasteful to the rabbits. They will not touch a tree that has been treated in this way, for the smell of fresh meat always terrifies this gentle and, in many respects, innocent little creature. This also prevents the mice from gnawing the bark from the trees, although occasionally they will overcome their prejudice for a taste of the tender bark. When the trunk of the tree has been peeled, the wound is covered with a cloth on which is spread a little grafting wax or cow manure. This latter, besides excluding the air from the wound, tends to heal the injured part, but if left on too long it becomes dry and hard, where insects or larvæ congregate."

Game Bag and Gun.

Address all communications to the *Forest and Stream* Pub. Co.

All readers who are interested in the protection of the Yellowstone National Park, are invited to co-operate with this journal in the endeavor to secure needed legislation. Petitions will be sent to all who will undertake to have them signed and forwarded to Washington.

PILGRIMAGE OF THE SAGINAW CROWD.

IV.

THE way of our getting back to Red Fork will be described by both Brooks and Ed. You will readily see that the stories do not jibe; one or the other is given to romancing, and we are afraid it is "Section 37;" at any rate he must stand the brunt of it. Ed's is given first, as he, together with George and the writer, left ahead of the others, consequently he must know more about what took place. In fact, Brooks's little episode of the "night sentinel" business at our camping ground that night will probably be better relished by first hearing a truthful account of the same. Ed writes as follows:

On Monday we decided to make a start for home the next day, and arranged that Billy, George and Ed should start at noon with the lumber wagon and darky driver, taking the baggage and dogs. George, thinking he would rather ride in the saddle than the wagon, we concluded to take a saddle horse along. As we would have a pretty heavy load, we figured on making Buck Horn Creek, about fifteen miles from the ranch, the first day, which would leave us an easy drive of about thirty miles for Wednesday. The rest of the party were to leave on