

of an old field, where the mule is tied and Pills is given his liberty. He disappears in the weeds, and five minutes thereafter sets up a steady, persistent barking, but in a soft, low tone.

"He's found 'em," says Gregory, and we push through the weeds to the opposite side of the field, where we find Pills sitting on his haunches, his eyes riveted on the top of a small turkey oak, and barking steadily. A brief inspection of the tree reveals five quail among the branches, two sitting low down, and three close together near the top, all motionless as statues.

"Take de lowes' one fust," says Gregory, bringing his singlebarrel to shoulder and firing as he speaks. He drops one bird, I demolish another, and then cover the trio in the treetop, two of which fall to the shot, but the third one goes fluttering away badly wounded, and this starts the balance of the covey. They begin to scatter away very

which are plenty; and one particular fine chase through the open pine woods is made in plain sight for some two hundred yards. It results in the dog's fairly outfooting and picking up the rabbit, which he brings, kicking and squealing, to his master, and delivers up with a look of proud satisfaction. I would like to own that dog. I could afford to take him to Pennsylvania. But his owner declines to sell at any reasonable figure, and, leaving Gregory all the game save two plump quail, I make my way to camp, with two hours of daylight to spare.

And here, as I live, comes the dingy with the Skipper and Joe. I am admonished to pack up lively, as it is decided to start for the North on Saturday and the Skipper wishes to spend a day investigating the mysteries of the "Stone House," which, tradition says, was built more than 200 years ago. I think tradition lies; but all the same make haste to get my duffle on board the canoe, and,

*Cariacus lotecus*, Brooke. Yucatan Deer. Mexico.  
*Cariacus rufinus*, (Bourcier et Pucheran) Brooke. Black-faced Brochet. Mexico to Ecuador.  
*Cervus canadensis*, Erxleben. Wapiti. American "Elk." Virginia, California and northward.  
*Alces machlis*, (Linné) Gray. Moose (elk of Europeans). Northern United States and northward.  
*Rangifer tarandus*, (Linné) Gray. Reindeer. Arctic North America.  
*Rangifer tarandus groenlandicus*, (Kerr). Barren-ground Caribou. Arctic America.  
*Rangifer tarandus caribou*, (Kerr). Woodland Caribou. Northeastern North America.

Family ANTILOCAPRIDÆ. The Prong-horn Antelope.  
*Antilocapra americana*, Ord. Prong-horn Antelope or Cabrit. Plains west of Missouri from Lower Rio Grande to Saskatchewan.

Family BOVIDÆ. The Cattle.  
*Bison americanus*, (Gmelin) Gray. American Buffalo. Plains between the Rocky Mountains and Missouri River.  
*Ovis moschatus*, Blainville. Musk-ox. Arctic North America.



THE COLLARED PECCARY (*D. taqaçu*). ADULT MALE; DRAWN BY THE AUTHOR; ABOUT ONE-SEVENTH THE SIZE OF LIFE.

lively, but Gregory gets in one more shot at a laggard and then they are gone, making straight for a dense hammock 100 rods distant. Pills behaves admirably. He is perfectly steady to shot and tree, does not chase, and when the excitement is over proceeds to retrieve the birds in a businesslike manner and without orders. He first brings in the five dead quail, and then without a word from his master starts off into the scrub after the wounded bird, which it is evident he has marked down. He is back in less than five minutes with his bird.

"You've taught him to retrieve well," I said.  
"Neber learned him nothin' 'bout it," said Gregory; "he jess tuk up de notion his ownse'f."

Pills soon finds another covey, and this time I have a fair chance to see him get in his work, which is simple but effective to a degree. On striking the trail he roars rapidly up to the birds, and as the first one rises he rushes on them at top speed with a succession of short, shrill yelps which sends the frightened covey into the nearest trees, where they sit immovably watching the dog as though fascinated. Then Pills squats on his haunches in plain sight of his game and changes his tone to mild, plaintive baying, remaining steady to tree and bark in spite of shooting and tumbling birds, until the remaining birds take flight, when he suddenly relapses into silence and becomes absorbed in marking them down. It is all very sagacious and shows, to my thinking, more of reason than instinct.

We follow up the scattered covey and succeed in getting a couple of stragglers, when, finding we have just fourteen quail, I propose to quit. But Gregory, like your "true" and "legitimate" sportsman, is intent on making a "bag."

I will shoot no more, however, and he reluctantly turns his face homeward. We find the mule in disgrace through getting a fore leg tangled in his halter and his rope harness in a tangle of twists and knots past understanding. Gregory soothes and relieves him by the vigorous applications of a club, after the manner of mule drivers the world over, and we start for home, I trailing along behind the cart, for I have been jolted and bumped sufficiently over palmetto roots on the way out. On the way home Pills, whose hunting blood is fairly up, makes some sport by racing the cottontails,

just as the sun gets behind the pines on the west side of the bay, pick up the double-blade for a tiresome paddle of six miles to the fish-factory. Two hours later I am in the Stella's cabin smoking lazily, and with a pretty decided notion that my camping on the east coast of Florida has come to a sudden end. NESSMUK.

## Natural History.

### THE PECCARY.

WITH INTRODUCTORY NOTES ON THE ORDER UNGULATA.

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

HAVING carried my sketches of the United States mammals through the Provisional List of the U. S. National Museum to include the Cetaceans (see FOREST AND STREAM, Oct. 27, 1887), I will in the present contribution take up the next group dealt with in that List, which we find to be the Order Ungulata, a group largely represented in the existing world's fauna, and which in our country is fairly represented by at least one species of peccary, some nine or ten species of deer and elk, an antelope, less than half a dozen bovine species, and as we pass into Mexico and Guatemala, by two species of tapir and another peccary. Still pursuing the plan adopted in the sketches already in former numbers of FOREST AND STREAM, I will here republish the Order Ungulata as we find it in full in the List alluded to above. It stands as follows:

#### ORDER UNGULATA. UNGULATES.

##### SUBORDER ARTIODACTYLA.

##### Family DICOXYLIDÆ. The Peccaries.

*Dicotyles taqaçu*, (Linné) Sclater. Common Peccary. Arkansas to Patagonia.  
*Dicotyles labiatus*, (Cuvier). White-lipped Peccary. Guatemala to Paraguay.

##### Family CERVIDÆ. The Deers.

*Cariacus macrotis*, (Say) Brooke. Mule Deer. Central North America.  
*Cariacus columbianus*, (Rich.) Gray. Columbia Black-tailed Deer. Pacific slope.  
*Cariacus virginianus*, (Boddert) Brooke. Virginia Deer. Canada to Panama.

*Ovis montana*, Cuvier. Bighorn; Mountain Sheep. Rocky Mountain regions to Mexico.  
*Ovis montana dalli*, Nelson. Dall's Mountain Sheep. Mountains of Alaska and southward into British America.  
*Mazama montana*, (Ord.) Gill. Mountain Goat. Northern Rocky Mountains of the United States and British America.

##### SUBORDER PERISSODACTYLA.

##### Family TAPIRIDÆ. The Tapirs.

*Elasmognathus bayditi*, Gill. Baird's Tapir. Mexico to Panama.  
*Elasmognathus dowi*, Gill. Dow's Tapir. Guatemala to Costa Rica.

Next following we find the List presenting us with the wonderfully extensive Order, the Rodentia, which I trust may furnish material for future articles; but right now let us turn our attention to some of the leading facts science has brought to light, in comparatively recent times, in reference to the history of the Ungulata; then pass to a short sketch of the Peccary, the first species which appears in the List accompanying this contribution. In the papers immediately following this one, and before we enter upon the Rodentia, I trust, too, to touch upon the life-histories of certain Cervidæ, Antilocapridæ, and Bovidæ enumerated above.

During the early part of this century, systematic zoölogists, guided by the knowledge then in their possession, were quite unanimous in dividing the easily recognized group of "hoofed mammals" into sections, designated as the *Artiodactyla* and *Perissodactyla*—a grouping which excluded such animals as the Hyrax and Elephants, and decided that these latter were not especially related to the true Ungulate types, but should be placed in separate groups, which were duly created for their reception. In recent years, however, the unceasing labors of the paleontologists, both in our own country and abroad, have brought to light the fossil remains of a vast host of extinct types, which careful study has shown to be the ancestral and linking kin among not only modern perissodactyl and artiodactyl ungulate species, with Hyrax and the Proboscidea, but with other outlying families formerly thought to be distinct. So that we are at present enabled to reconstruct this far more numerous assemblage of forms, and by associating both the existing representatives with those now extinct, we make our order Ungulata include them all. Whereupon again passing in review our knowledge of the structure of these animals,

we find that we can still retain our old sections, the Artiodactyla and Perissodactyla, as two clearly defined suborders of the Ungulata, and designate them as the *Ungulata vera*; while we throw all the other species, upon whose structure we are not nearly so well informed, into other sub-orders, and collectively term them the *Subungulata*, or in contradistinction to the first, the *Ungulata polydactyla*.

This arrangement may be still more clearly shown thus:

	Suborders.	Examples.
Ungulata..	{	Artiodactyla.... Swine, Ox, Deer.
		Perissodactyla.. Horse, Tapir, Rhinoceros.
Subungulata....	{	Hymnoidea..... Hyrax.
		Proboscidea.... Elephants.
		Amblypoda..... Dinocerata and other extinct forms.

Very excellent anatomical characters distinguish the Artiodactyla from the Perissodactyla, which our limited space will forbid entering upon here, but we will be permitted to notice the chief among these, and I refer to the differences which obtain in the skeleton of the feet of these two suborders. Aside from now well-known differences which exist in the arrangement of the bones of the wrist and ankle joints, we find that the artiodactylous animals are *even-toed*, as in the deer, pig and camel, the *median line of the foot passing down between the third and fourth digits* (see C and D of the figures). Now the perissodactylous animals are *odd-toed*, as in the horse and rhinoceros, the *median line of the foot passing longitudinally down the center of the third digit* (see A and B of the figures). It will at once be noticed that these types of feet are very different from what we find in the great elephantine ungulates, as in the elephant (see Fig. 4).

In the present connection it will be obviously impossible to enter upon the natural history or structure of the highly interesting species falling under the Subungulata. None of them are now represented in the existing fauna of the United States.

Taken as a whole, then, these are some of the distinguishing characters of the Ungulates: For the most part they are vegetable feeders, and of a terrestrial habitat; they are without a collar-bone; they walk on their *toes*, which latter are either armed with a true hoof, or protected by nails, which are broad, blunt and rough; their teeth are well developed and arrayed upon definite plans. A study of the skeletons of existing species, and the long array of extinct ones, recently brought to light, show a vein of kinship running through the entire group, linking them more or less closely together, and even in some instances pointing to a relationship with other orders, as perhaps the Rodents on the one hand, and the *Sirenia* on the other.

As engaging a subject as the study of the entire group of existing Ungulata proves to be, with its elephants, its quaint little puzzle the Hyrax (of several species); its vast variety of Horses; the Rhinoceroses; the Tapirs; the different types of Swine; all the Cavicorn ruminants; and all the numerous species of deer and their allies; the Camels and their kind; as interesting as I say this study is, its interest is simply trebled, when we come to trace back through the fossil forms referred to above, the extraordinary types which were the ancestors of this now living host of animals.

In a short article like the present one it will be out of the question to trace back into geologic times, even a few of these extinct lines of ancestors of existing ungulates, but to quote quite fully from Le Conte, "it will be interesting and instructive to run out one of these branches and show in more detail the genesis of one of the extreme forms. For this purpose we select the horse, because it has been somewhat accurately traced by Huxley and by Marsh. About thirty-five or forty species of this family, ranging from the earliest Eocene to the Quaternary, are known in the United States. The steps of evolution may therefore be clearly traced. In the lowest part of the Eocene basin (*Coryphodon beds*) of Green River, is found the earliest-known animal, which is clearly referable to the horse family, viz., the recently-described *Eohippus*, of Marsh. This animal had three toes on the hind foot and four perfect serviceable toes on the fore foot; but, in addition, on the fore foot an imperfect fifth metacarpal (splint), and possibly a corresponding rudimentary fifth toe (the thumb), like a dew-claw. Also the two bones of the leg and fore arm were yet *entirely distinct*.

"This animal was *no larger than a fox*. Next, in the *Middle Eocene* (Bridger beds) came the *Orohippus* of Marsh, an animal of similar size, and having similar structure, except that the rudimentary thumb or dew-claw is dropped, leaving only four toes on the forefoot. Next came, in the *Lower Miocene*, the *Mesohippus*, in which the fourth toe has become a rudimentary and useless splint. Next came, still in the *Miocene*, the *Miohippus* of the United States and nearly allied *Anchitherium* of Europe, more horse-like than the preceding. The rudimentary fourth splint is now almost gone, and the middle hoof has become larger; nevertheless, the two side hoofs are still serviceable. The two bones of the leg have also become united, though still quite distinct. This animal was about the *size of a sheep*. Next came, in the *Upper Miocene* and *Lower Pliocene*, the *Protohippus* of the United States and allied *Hyparion* of Europe, an animal still more horse-like than the preceding, both in structure and size. Every remnant of the fourth splint is now gone; the middle hoof has become still larger, and the two side hoofs smaller and shorter, and no longer serviceable, except in marshy ground. It was about the *size of the ass*. Next came, in the *Pliocene*, the *Pliohippus*, almost a complete horse. The hoofs are reduced to one, but the splints of the two side toes remain to attest the line of descent. It differs from the true horse in the skull, shape of the hoof, the less length of the molars, and some other less important details. Last comes, in the Quaternary, the modern horse—*Equus*. The hoof becomes rounder, the splint bones shorter, the molars longer, and the second bone of the leg more rudimentary, and the evolutionary change is complete." Professor Le Conte took his figures from Marsh, and I copied them from the former. In mine the figures of the limbs and the teeth of these extinct and modern horses were not drawn. Cope has traced out the descent of the camel in very much the same manner, and this latter writer has of recent years marvellously added to our knowledge of these highly important extinct types, and in admirable schemes of classification, too extensive

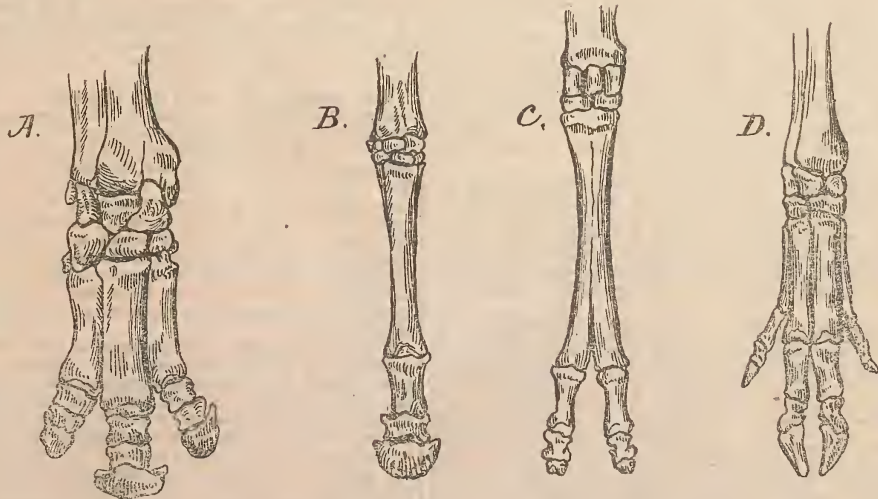


Fig. 2.—Left lateral view of the head of a male Babirusa, considerably reduced.

Fig. 3.—Head of a male Wart-Hog (*Phacochoerus africanus*); reduced. Figs. 2 and 3 designed to show the extraordinary development of the canines in some of the relatives of the Peccary.

Fig. 4.—Right forefoot of Indian Elephant; greatly reduced. (After Flower.)

Figs. a-f.—Forefeet of *Equus* and its extinct kin. a. *Orohippus* (Eocene); b. *Mesohippus* (Lower Miocene); c. *Miohippus* (Miocene); d. *Protohippus* (Lower Pliocene); e. *Pliohippus* (Pliocene); f. *Equus* (Quaternary and Recent).

Figs. A-D.—A, B. Feet of Perissodactyles; C, D. Feet of Artiodactyles. A. Tapir (*Tapirus indicus*); B. Horse (*Equus caballus*); C. Camel (*Camelus bactrianus*); D. Pig (*Sus scrofa*). A and B are  $\times 1\frac{1}{2}$ , C  $\times \frac{3}{8}$ , and D  $\times \frac{3}{8}$ . (After Flower.)

to be dwelt upon here, has shown the probable origin of existing families of Carnivores, Insectivores, Quadrumana, etc., from his Bunotheria; and as we have pointed out above, the various families of the order now under consideration, from the generalized extinct types of the Amblypoda. The study of the evolution of structure that is displayed in the remains of these ancient forms, as compared with the anatomy of species still living on the earth, affords a lesson pregnant with facts of the very highest importance, and well worthy of the profoundest contemplation of the trained zoölogist and philosophic naturalist.

We pass now to a brief consideration of the life-history of existing families of the Peccary. There are but two species of these animals, both being confined to the American continent; the larger of the two, the white-lipped peccary, being restricted to a range between British Honduras and Paraguay. This animal (*D. labiatus*) has a length of about 40in., and is characterized by its white lips and lower jaw; its general color being nearly black; and as in all wild swine, its young are longitudinally striped in their markings. A South American observer says, "This species lives in large bands, sometimes amounting to a thousand, and stretching out for a league, migrates from one dis-

trict to another. If they come across a plantation they devastate it by rooting up its crops; when they meet any thing unusual they are thrown into great alarm, which they express by a clatter of the teeth. If a hunter ventures to attack one of these herds, he is sure to be torn in pieces by the infuriated throng, unless he take to a tree or escape by flight. When excited by rage their eyes flash, they rub their snouts together, erect their bristles, and fill the air with their cries." Peccaries are notorious in possessing a powerful scent gland, giving forth through the oleaginous substance it secretes, the most offensive odor, and unless this be immediately removed after they are killed, it totally unfit their flesh for human consumption. This is best marked in our own species (*D. tajacu*), and this structure induced the early describers to believe it to be a second navel, an idea which led to its specific name of *Dicotyles*, bestowed upon the genus by Cuvier.

As will be seen from our figure of a peccary that these little, wild, pig-like animals not only resemble the domesticated species in their general form, but they also do, in so far as their different mode of life will allow them, in all their other propensities, habits and structure. One striking difference, however, for peccaries lack any external evidence of a tail, an appendage of almost historical fame in the common pig. Further, nothing of striking note particularly characterizes the canine teeth in these peccaries, whereas some of their foreign relatives are markedly favored in this particular, as for example the Babirusas of the island of Buru and the Celebes, a species wherein the upper canines actually pierce the lips as shown in Fig. 2, one of my drawings illustrating this article; or the still more remarkable canines of the Wart-Hog of the continent (see Fig. 3), where these teeth are great, upturned tusks, protruding far beyond the limits of the lips and jaws. Notwithstanding such marked differences as these, however, the many species of swine, the world over, both wild and domesticated, have nearly a common structure, and so far as paleontology goes to show us, they have held to it in former geologic periods "with characteristic pertinacity," as is evidenced by the several species of fossil types which have been discovered. It is said that these animals, if taken young, may be easily domesticated, but owing to their flesh being much inferior to that of the common varieties of swine, and to their frightful odor, and to their not being prolific breeders, there has been no special inducement to undertaking their domestication upon any great scale. Usually a female peccary will bear but once during a twelve-month, and then bring forth but one or two young at the time. Omnivorous in their tastes, these animals will feed indiscriminately upon roots, fruit, fish, snakes, worms or even carrion, and I have already alluded to the manner in which they will lay waste the farmer's crops on certain occasions. Those who have enjoyed studying their habits in nature, tell us that they resort to the burrows deserted by other animals, or to the hollow trunks of trees, to dwell in them; but that for the most part they are usually met roaming in small or large parties through the trackless forests, where the hunter may easily follow them by their powerful scent.

Our species, the collared peccary, ranges from the Red River of Arkansas, southward, and is not as large an animal as the white-tipped one by 4in. in its total length. It is, moreover, less ferocious in its habits, being rather gentle than otherwise, and little disposed to attack any one or any thing. Commonly it is met either in a herd consisting at the most of not more than a dozen individuals, or at other times a single pair, or even a lone one may be found by the hunter. This species is at once distinguished from *D. labiatus* by the whitish band which passes across the back from shoulder to shoulder (see Fig. 1). For the rest the animal is clothed in a coat of dark-grayish, bristly hair, which is markedly lengthened along the back from head to tail, or where the tail ought to be, were one to be found there. One writer well describes the foot structure in the peccary in these words, and he says: "In the feet the two middle (third and fourth) metapodial bones, which are completely separate in the pigs, are united at their upper ends, as in the ruminants. On the forefoot the two (second and fifth) outer toes are equally developed as in pigs, but on the hindfoot, although the inner (or second) is present, the outer or fifth toe is entirely wanting, giving an unsymmetrical appearance to the member, very unusual in Artiodactyles. As in all other existing Ungulates, there is no trace of a first digit (pollex or hallux) on either foot."

As much as has been already contributed to our knowledge of the habits and structure of the peccary, and indeed to the *Suina* generally, there is a great deal of unwritten information in regard to them, which science will be very glad to have at her command; and any investigations in such directions should be encouraged, and accurate reports of researches will be highly valued.

While engaged in writing this article I have been much assisted through my perusal of the following works: Professor W. H. Flower's excellent contribution to the ninth edition of the British Encyclopaedia, more especially the one on the "*Suina*," and several on the Ungulates generally, as "Hippopotamus," "Peccary," "Horse," and "Swine." Also the "Osteology of the Mammalia," by the same author. Prof. Sir Richard Owen's "Anatomy of Vertebrates," and his special monographs, "Marsh's classic quarto volumes on the "Dinocerata" and other memoirs by the same writer. Cope's long series of papers in the *American Naturalist*, fully illustrated, and presenting the most exhaustive accounts of fossil ungulates. Huxley's "Anatomy of Vertebrate Animals," his "Elements of Comparative Anatomy" (1869), and many of his numerous other contributions relating to ungulate morphology. Caton on "The Antelope and Deer of America." Several of G. Baur's recent memoirs; and the excellent contributions of Scott and Osborn, of Princeton College, to the subject, Gilg's "Arrangement of the Families of Mammals," "Woman's Comparative Anatomy of the Teeth of the Vertebrate;" the general text books of Gegenbaur, Packard, Wiedersheim (Parker's trans.), Claus and Södegvicke, Bell and others. Wallace's account of the *Babirusa* in his "Malay Archipelago." Mivart's "Lessons in Elementary Anatomy." Chanveau's "Comparative Anatomy of the Domesticated Animals." Darwin's "Origin of Species" and "Animals and Plants under Domestication." Several of Garrod's special memoirs, more particularly the one on "The Order Dinocerata." Le Conte's "Elements of Geology," and numerous special contributions of a number of other writers upon the subject.

RANGE OF THE QUAIL IN NEW YORK.—The excitement created among dogs and older inhabitants by the appearance of two Bob Whites in our meadows last July has raised the questions, What is the exact range of the quail in Central New York? Where is it found north of Poughkeepsie and east of Onondaga county? And, in each case, is its presence normal, or has it been introduced? Can the readers of the FOREST AND STREAM enlighten us? FLORENCE A. MERRIAM (Locust Grove, Lewis county, N. Y.).

KINGFISHER IN NEW YORK IN WINTER.—New York, Jan. 22.—*Editor Forest and Stream*: When crossing from Pelham to David's Island, Long Island Sound, on Friday afternoon, Jan. 20, 1888, I was much surprised to see a kingfisher (*Ceryle alcyon*) flying over the water close to the bow of the boat, as we neared the Government dock. There was considerable ice in the bay, and with the fields white with snow, this bird, so characteristic of sunshine and summer weather, seemed sadly out of place. He uttered no sound as he flew along, and I doubt not the cheerless nature of his surroundings (or possibly a severe cold) had taken away all inclination on his part to wake the echoes with his familiar "rattle." We have had so little severe weather this season, until the last two or three days, our wanderer possibly thought he could manage to struggle through and so escape the long flight southward, but he must have found food rather scarce lately, and when he awoke this morning with the mercury in the thermometer coquetting with the zero point he probably wished himself far away among his companions in a warmer clime, where he could bask in the sun all day long and "rattle" in comfort the death knell of innumerable small fishes. I have never heard before of one of these birds staying with us so late. The only other instance of a late observation of this bird that I find in looking over my notes was on Dec. 19, 1880, when I saw a single specimen sitting on a tree over a brook in a swamp, near Flushing, L. I., when everything was frozen hard except the brook. I sent a note to the FOREST AND STREAM at that time about it.—ROBERT B. LAWRENCE.

ICE-BOUND RAIL.—New York, Jan. 11.—*Editor Forest and Stream*: On Dec. 23, 1887, some boys while playing on the salt meadows near Flushing, L. I., found four sora rail (*Porzana carolina*) and succeeded in capturing one alive. The boys stated that the birds seemed unable to fly. There was considerable ice and snow around, and it seems scarcely possible that these birds could have obtained food. There were no warm springs where these birds were found. I saw the captured bird the same evening; it was confined in a small box, and seemed uninjured and in good condition.—ROBT. B. LAWRENCE.

CARDINAL GROSBEAK IN NEW YORK IN WINTER.—On Tuesday, Jan. 17, I saw on 156th street, near Eleventh avenue, a young male *Cardinalis virginianus*. The species is not uncommon in Central Park in summer, and has been reported more than once as occurring in winter; but the circumstance is perhaps sufficiently unusual to warrant this brief mention.—G. B. G. (New York, Jan. 20).

OTTER IN DELAWARE.—An otter, measuring 4ft. in length and weighing 28lbs. was captured in Jones's Creek, three miles from this town, to-day. This is the first otter seen in this section for many years.—DEL. A. WARE (Dover, Del., Jan. 8).

## Game Bag and Gun.

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### GAME AND FISH PROTECTORS.

THROUGH the courtesy of Gen. R. U. Sherman we have been supplied with advance sheets of the following portion of the report presented to the Legislature by the New York Commissioners of Fisheries last Tuesday:

The reports of the Game and Fish Protectors annexed will show what has been done in this department during the last year. With a few exceptions, these officers have given vigilant and faithful attention to their duties and have been as successful as the circumstances permitted. The work reported is greater in volume and importance than that of any previous year, and the fact may be mentioned as particularly showing an advance, that indictments have been lately found by a grand jury in Hamilton county of residents of that county for violation of the game laws! Such an occurrence has hitherto been thought impossible. It has been the office of grand juries in that county to protect rather than punish offenders.

The protectors have been cramped in their work by the insufficiency of their allowance for expenses. This has been alluded to in former reports, and the remedy which has been suggested is now renewed, viz.: That there should be an appropriation of \$5,000 put at the command of the Commissioners, to be expended in their discretion in necessary measures to facilitate the enforcement of the law by the protectors. The present allowance of traveling expenses is twenty dollars and a fraction per month to each protector. In the performance of a month's duty which necessarily involves a good deal of travel, this sum by no means suffices, and the protector must not only take from his salary to eke out his official expenses, but must be without any means to pay for necessary aid, such as the employment of special detectives and other assistants, and the hire of boats and other means of transportation essential to the service. The additional allowance recommended should not be made in stated sums to every protector, but should be given by the Commissioners as needed for special occasions as they may occur. If the appropriation should not be all required it would not be used.

The next great difficulty the protector has to encounter in the performance of his duty is the lax public sentiment that prevails in the principal game centers. This laxity is of the same nature as that which exists in regard to many other good laws founded for the protection of property and the maintenance of order and morality. The aversion of a community to the wholesome restraints of a law which bears upon the vicious appetites and propensities of any considerable class has its bad influence on all local officers charged with the administra-

tion of the law. Under this jurors learn to disregard the obligations of their oaths, prosecuting officers become lax and unfaithful and the evil effect extends often to the judicial bench itself.

It is difficult to make people who live in the neighborhood of streams and lakes containing valuable fish, or of forests holding choice game, understand that the protection of this useful food supply from improvident waste is more their concern than it is that of people living remote and enjoying its benefits only on occasional and expensive visitations. The local class are generally as zealous to destroy the choicest game as they would be to destroy noxious animals. They take no heed of the ultimate consequences which must come of their ruthless spoliation, but look only to the wants or destructive pleasures of the day. They exemplify in the fullest sense the story of the goose that was killed for the golden egg.

The repression of this vicious spirit of destruction can be effected only by means of laws wisely framed to promote the end in view and faithfully administered by honest officers.

One of the greatest obstacles at present in the way of the enforcement of the game laws is the neglect, from disinclination, of district attorneys to prosecute cases brought by the protectors. This criticism is not meant to apply to the prosecuting officers as a class; for as a rule they are as faithful as any other class of public officers. But in most places where the public sentiment is bad, prosecuting officers lack zeal and independence. Thus it will be found that in the worst poaching localities, as Hamilton, Franklin, Lewis, Cortland, Otsego and some others, the number of offenders prosecuted to judgment is small compared to the number complained of. A case has been reported to the Commissioner where a present of venison taken out of season was sent by the law breaker to the district attorney of his county, and that officer, instead of promptly reporting the offender to the grand jury, wrote a note thanking the poacher for the contraband meat!

In the larger counties, the pressure of business falling to district attorneys is so great that some must be necessarily neglected. The murder cases must of course have precedence, and the burglaries, robberies, arsons, rapes, and the higher misdemeanors must be attended to; so offenses against the game laws, which are not esteemed as of as high a grade as they really are, are pigeonholed and do not receive attention till business of supposed weightier concern has been disposed of. Where a wholesome sentiment prevails, in counties less burdened with crime than those which contain the large cities, the game law cases have better care, and there are some district attorneys whose prompt and vigorous action in such cases has made the law respected. But often the best efforts of the protectors are set at naught by the lack of the proper co-operation of the prosecuting officer. It is suggested whether, in view of these considerations, it would not be good policy to make provision for the protector's cases, either by creating a separate department in the district attorney's office in counties where these officers are over-burdened with business, or by permitting protectors to bring and prosecute suits through outside counsel.

How "not to do it" is well illustrated in a case stated in the report of Protector Drew of his experience in Otsego county. This report will be found in its place among the supplementary matter. The protector spent many weeks' time and not a little of his scanty personal means in looking up flagrant cases of violations that had been complained of by reputable residents of Otsego county, and after having, with much skill and pains, worked up some fifteen cases, in all of which he thought he had secured ample evidence to warrant affirmative verdicts, he brought suits accordingly. They were all placed on the calendar of the Supreme Court, where the judge, to relieve the pressure of an overburdened calendar, with the consent of all the parties interested, sent the whole batch to the County Court. Here, by some blunder growing out of the incoming of a new district-attorney, they were all knocked off the calendar, and a movement had to be made to the General Term to get them restored. Again they came on for trial. For some reason, which, it is hoped, the district-attorney will be called on officially to explain, the cases, which had been prepared with great care by the late district-attorney, were all withdrawn by his successor without consultation with the protector. The effect of this singular proceeding, whatever may have been its motive, was most disastrous to the interest of protection. There had been for years in Otsego county more or less violations of the game laws, but under the stimulus of the protector's efforts there was a growing amendment, and offenses which had formerly been committed with impunity were now done only by stealth; but when the poaching fraternity found that the district-attorney had, as it were by a wave of the hand, let them loose from the law's shackles, practical anarchy set in. Sparing, netting and every other device declared contraband by the law now ran riot on Otsego Lake, and a week had not elapsed before the lake was fairly gutted. The situation is thus described by an eye witness at Cooperstown:

"The spawning beds have been swept clean, over 1,600lbs. of trout (not one of them weighing less than 5lbs.) being lugged off to Oneonta as the result of one night's rascality, and bushels of spawn left rotting on the shore. Many of these fish—all of them utterly unfit to eat—being taken in the very act of parturition, were peddled through our own streets at two cents per pound, and all besmeared at that with spawn." For fifteen years or more the Commissioners of Fisheries have been adding to the fish supply of Otsego Lake, and have in that time planted over 1,500,000 salmon trout. The fishing of the lake when the Commissioners commenced to restock it, was at a low ebb, but at the time of the proceedings narrated, had become again very good, when by one day's bad work in the County Court the labor of fifteen years was undone and a blow struck at good order, which tends to the lasting disgrace of the county.

As in the case of the bomb throwing at Chicago, ultimate good, however, is likely to come out of the evil. It is no longer popular to truckle to the poacher in Otsego. In view particularly of the late outrageous proceedings, the Board of Supervisors have passed an iron-clad law, which forbids all fishing except with hook and line, for the space of five years, in Otsego Lake, and imposes the severest penalties on all violators. And it makes such provision for the trial of cases as will render possible their