unrivalled anywhere in New England, and I never pass one of these deserted farms without seeing its possibilities and without my heart reaching after puny boys and girls in pent-up city quarters who would thrive in body and mind under the summer skies in the liberty, freshness and beauty of these surroundings.

MRS. ANNIE A. PRESTON.

MAPLE CORNER, Willington, Conn.

Natural History.

THE EUROPEAN BISON.

BY E WALDEEK.

THE animal most nearly allied to the American buffalo is the European bison, loosely called the old German aurochs, and to-day termed in the German and Russian languages, *wisent*, an animal which about a thousand years ago inhabited the whole of Germany, Austria, Hungary and Russia.

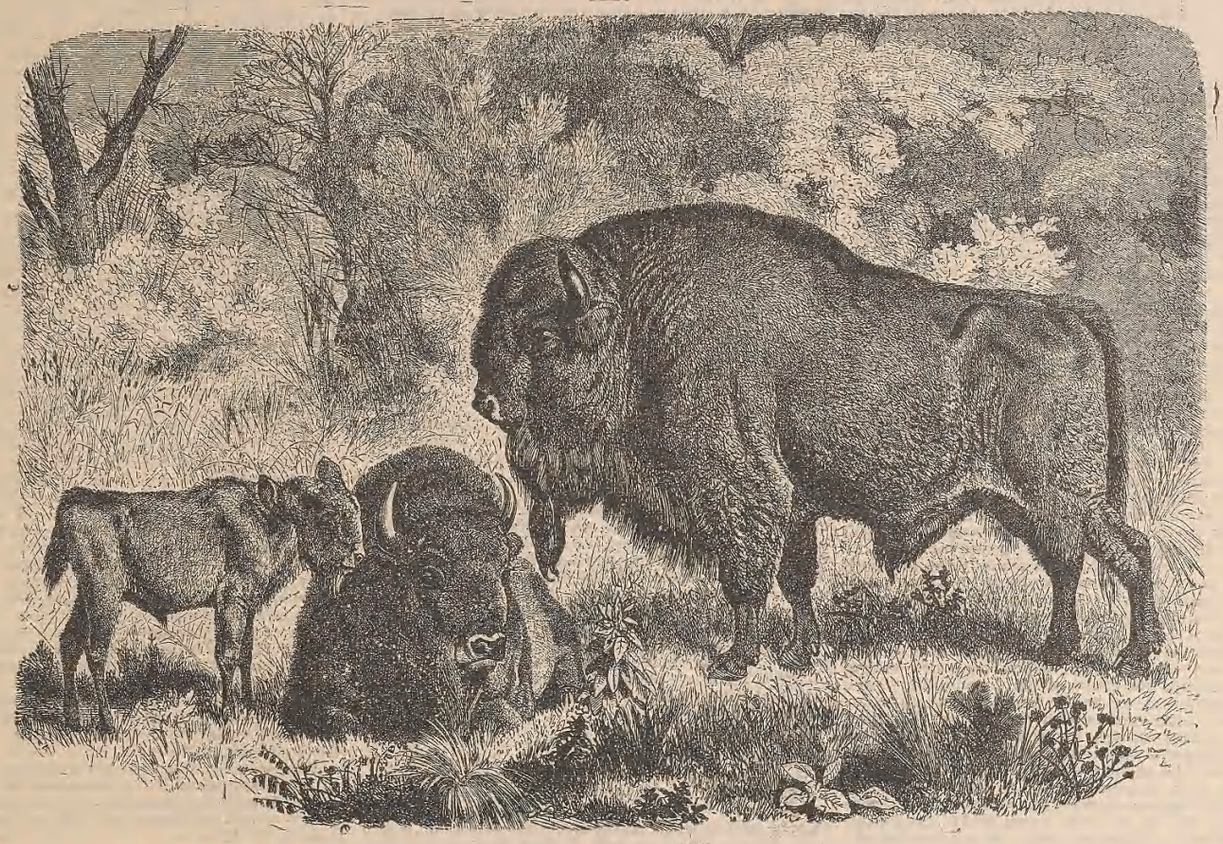
Though this animal is commonly called by the people, aurochs, this is not its proper name. The aurochs was quite a different animal which became extinct many years ago. About it we know little more than can be gathered from examination of its fossil bones and from the descriptions of old Roman and German writers, such as Seneca, Pliny, Albertus Magnus, Thomas Cantapratensis, Johann von Marignola, Bartholomaus Anglicus, Paul Zidek, von Herberstein and Gessner. The old German laws and hunting reports also speak of two different kinds of wild oxen, and the celebrated "Niebelungenlied" also speaks of them. Pliny says that the bison or *bonasus* was frequently brought alive to Rome, where it showed its enormous strength in the bull fights. He further says that the bison was remarkable for its long mane, and the aurochs (*Urus*) for its horns. Writing of Germany, Cæsar says "there is a kind of wild ox much like our domestic cattle, only with much longer horns." This refers to the aurochs. Lucas David writes that in the year 1240, Otto of Brunswick presented to his brother some bison and some aurochsen. Cramer says that Prince Wradislaw killed in the year 1364 in Pomerania a bison which was nearly as large as an aurochs. Herberstein gives a figure of the bison and one of the aurochs, the latter closely resembling the domestic bull. Under this picture is written "I am Urus, called in Poland, Tur, and in Germany Aurochs." This is about the last definite information we have about the Urus. Dr. Cunrat Forex in the year 1583 writes about the urus or aurochs, but speaks of it as a species which has died out.

All old writers speak very highly of the meat of the bison as also of that of the aurochs. The skin was also highly prized, and was used for girdles and other ornaments for ladies of high rank, and even princesses and queens were glad to wear them.

To-day in Europe we find the European bison living wild only in the western part of Russia, in the extensive forest of Bialowitza, Bialowesch or Bialowiez, where it is carefully protected by the Russian government. This almost pathless forest is about 35 miles long and 30 wide, comprising a district of 1,050 square miles in which are to be found only a few log houses for the use of forest guards, though some small villages adjoin the borders of the wood. About four-fifths of the forest consists of pine, but in some places where the ground is moist, we find also the fir tree, oak, lime, hornbeam, birch, alder, poplar and willow mingled with the pines. All the trees which grow here reach a great age and enormous size, and the whole forest still presents the same aspect that it did more than a thousand years ago.

The gigantic trees are never felled by man. They are overthrown only by heavy storms, and rot where they fall, giving room, light and food to the younger trees growing up beneath them, which thus seem to rejoice in the death of their fellows. Here and there among the forest are found wide meadows or parks, where grow different kinds of grass and herbs mingled with heath and underwood. These plants furnish ample food for the gigantic inhabitants of the woods. These open spaces are usually the result of fires which often take place. Only here and in the Caucasus in Asia is the bison to be found to-day. Over all the rest of the globe he has become extinct, and had not the Emperors of Russia carefully protected him for centuries, he would to-day be no longer ranked among the existing animals of Europe.

Many years ago it was different. Then the bison was scattered over the greater part of Europe and Asia. In the palmy days of ancient Greece, it was found in Paonia and in what is now called Bulgaria, and everywhere in Middle Europe. Aristotle gives an exact description of him and calls him bonasus. Pliny terms him bison and names Germany as his home. Calpernius in his "Loges Allamanorum" writes about him in the year 282 and states that he found him in Wasgau (Alsatia). Charles the Great, of Germany, in the year 800 hunted bison with spear and axe in the Hartz Mountains, and in Saxony. By the year 1373 it had been driven back to Pomerania, in the fifteenth century to Prussia, east and west; in the sixteenth as far as Lithuania; in the eighteenth to the eastern part of Prussia between Tilsit and Laubiau, where the last of the race was killed by a poacher in 1755.



THE EUROPEAN BISON.

The Kings of Poland tried hard to preserve the bison. They built barns and feeding places in the middle of the forests in order to winter these animals, feeding them hay. Sometimes the royal order was issued to capture bison alive, and these were presented to kings and princes. In this way two were given in the year 1717 to the Duke of Hesse Cassel; two others in 1738 to King George of England, and some to the Empress Catherine of Russia. Notwithstanding the efforts to preserve it, the bison disappeared entirely from Poland. In the forests and mountains of Transylvania in Hungary, it existed longer than in Prussia and Poland. We read in old books that in 1728 there were still many of them in the Szekler forest, close to the small village of Fülle.

The descriptions of the bison (*Bison bonasus*) which have been given us by ancient writers leads us to conclude that the bison of to-day has diminished in size, though he is still a strong and mighty animal. We are told that in the year 1555 a bison bull was killed in Prussia which measured 7ft. 10in. at the withers, was 14ft. in length and weighed 2,085½lbs. To-day, however, bison are not generally found heavier than from 1,700 to 1,800lbs. with a height of 6ft., and a length of from 10 to 11.

For many years it has been stated that one remarkable difference between the bison and the American buffalo, is that the former has only 14 pairs of ribs while the buffalo has 15 pairs. As has been shown by Dr. Allen, this statement is entirely erroneous. The American buffalo has 14 pairs of ribs like the bison.

The head of the bison is of moderate size and well formed; forehead arched and very broad; the nose is round; the ears round and short; the eyes small and full of light and fire; the neck short, thick and very muscular and with a mane or dewlap below, which reaches from the chin to the breast. The body is round and plump; the forelegs short but very strong and with oval hoofs; the hoofs of hind feet are much smaller than those of the front. The back of the bison is highly arched over the shoulders but not so much so as in your buffalo. The horns are placed at the side of the head and grow at first horizontally outward, then turning upward with the points slightly turned in. They are a little longer than the horns of your buffalo. The body is covered with a thick coat of light brown curled hair; the head, feet and shoulders being dark brown and the tassel at the end of the tail black. The hair on the head is very long and straight, and the beard reaches nearly to the ground, and continues under the throat down to the breast.

The bison cow is much smaller than the bull. Her color is the same, but the horns are shorter and lighter and the mane is less developed. A new born calf is much lighter in color.

In the year 1829 a count of the bison in the Bialowitza forests gave 711 head, of which 633 were old ones and the remainder calves.

In the following year, 1830, the number increased to 722, but in the next year, 1831, it was reduced to 657. The laws for its protection were more severely enforced from this on, and in consequence the number of bison increased until in 1857 there were 1882 head. Soon after this, during a revolt, many bison were killed by the people, and the last census of this animal, held in 1880, gave only about 550 bison, including cows and calves.

[TO BE CONTINUED.]

A VACATION IN WEST FLORIDA.

THE evening train from the North ran in to Tampa, the brightest, most energetic, prosperous looking town we had seen in Florida. In the fading western light the Moorish towers of the great Tampa Bay Hotel showed dimly, the electric lamps shone on clean looking brick blocks, which bore the unmistakable stamp of a booming city. Over the Hillsborough River, out on the tongue of land between the two great arms of the bay, and so on to a long low trestle-work, of which we were made aware in the darkness by the peculiar rumble of the train and the phosphorescent gleam of quiet waves below and around us. A few minutes more and we were at Port Tampa and were ushered into "The Inn."

The aforesaid we consisted of my companion, a young and enthusiastic conchologist and all around naturalist, and myself; and our object in visiting the west coast of the State was to spend the holidays in making natural history collections.

Next morning a strange sight greeted the eye. We were in a city built wholly on piles, a city which vaguely suggested Venice, the dwellings in Lake Maracaybo, or of the prehistoric tribes of Switzerland. Railway depot, stores, hotels, dwellings, and all the various buildings and appurtenances of a town were elevated on piling 5ft. above the clear water, through which we saw fishes, crabs and gleaming shells, the whole at least three-quarters of a mile from the shore.

Our hotel was a gem in its way, built and finished wholly of Southern pine, one of the most beautiful woods for decorative purposes in the world, when properly selected and varnished. It seems strange that the people of the United States have so generally neglected it; the only reason perhaps being its commonness and cheapness. When the long-leaved southern pine shall have become well nigh extinct it will no doubt be properly appreciated.

Around us lay the low shores of Tampa Bay, to the south and west the Gulf of Mexico. Our destination was the Manatee River, which, by one of those strange contradictions in geographical nomenclature, is not a river at all, but an arm of Tampa Bay, a beautiful sheet of water a mile or more in width and some eight or ten in

length. The real stream emptying into it is only an insignificant affair.

At 8 o'clock we were afloat on the Margaret, a pretty side-wheel steamer which makes trips from Tampa to the various small towns and landings in and around the bay. I think it is Ruskin who has said that three elements are necessary to form a perfect landscape, diversity of surface, rich and varied vegetation, and water. The first of these elements of beauty is totally lacking throughout this region. No country in the world, except perhaps Buenos Ayres, is more level than South Florida. The shores rise nowhere more than a few feet above high tide, save where the prehistoric tribes have built their kitchen middens or mounds of shells and earth, and any bank rising abruptly to a slightly greater elevation than the rest of the shore is invariably denominated by the inhabitants a bluff, and such names as Orange Ridge, Pine Ridge, and those of various mountains are applied with ludicrous effect to slight elevations in the interior that are imperceptible to the eye of the stranger. The vegetation, though in some places varied, is rarely rich, and for the most part consists of uninterrupted open pine woods. Any great assemblage of trees of a single species is monotonous, but a continuous forest of Southern pines, with straight, branchless, reddish-brown trunks, surmounted by a small tuft of crooked, gnarly limbs, is dreary in the extreme. And yet with but a single element of beauty abounding, there is an indescribable charm in the scenery of this region. The air is soft and languid and filled with a dreamy sensuousness, the water —teeming with life—glances brilliantly, and in the distance, low islands, or keys as they are called, seem to float in beds of shimmering silver. The warm wind sings soothingly through the pine needles, and over and above, and around all is poured a flood of brilliant semi-tropical sunlight. No one ever visits this country without carrying away with him delightful memories of this indescribable beauty, or without feeling a desire to see it again.

We watched the pelicans, the only birds we saw in any considerable numbers, birds that my friend declared were the saddest he had ever seen.

There certainly is something lugubrious about these droll creatures that ply their avocation as fishermen with such untiring industry. They look mournful enough, and yet in their apparent sadness there is something irresistibly ridiculous and which excites in one the same desire to laugh that a man would who falls on a slippery pavement. But to one who, like the writer, has been familiar in years gone by with this country, there is a great change noticeable in the greatly diminished amount of bird, reptile and fish life along these shores. Ten or twelve years ago the waters literally swarmed with fish, of which about one hundrad edible species inhabited the west coast. I have seen schools of mullet miles in length along these keyes, among which sharks held high carnival, and the incessant sound of these fish as they struck the water after making the characteristic leap was often so deafening that one could not hear conversation, and well authenticated stories are told of these same mullet swamping and sinking boats which happened among them. Yet during our cruise of ten days I did not see a dozen fish jump from the water, and although our boatman and cook were experts with the cast net they tried in vain to capture enough for a mess. There are, perhaps, two reasons for this rapid diminution of one of the most valuable food products of the country: The bottom of the sea in this vicinity is as flat as the dry land, and usually quite shallow. Several times each winter severe wind storms set in from the north which are locally called "northers." When unusually strong these storms drive the water out of the bays along the west coast and into the Gulf of Mexico, often laying bare tens of thousands of acres of muddy or sandy bottom. Occasionally at such times the mercury falls below the freezing point, and the fish, which are essentially tropical, are driven into shoal water and chilled until they become perfectly helpless, and so turn upon their backs and drift before the wind, and are often landed in ricks on the lee shores. If the tide rises soon and the weather moderates most of them are restored to life, but if it continues to blow cold they perish.

In the winter of 1886 there occurred a norther of extraordinary severity; snow fell on the Manatee for twenty-four hours, and ice an inch in thickness was formed. As a result millions of fish were drifted ashore and destroyed, and when the tide came in at last the water was so filled in many places with the dead floating about that boats could neither be pulled or sailed through them. They lay decaying in countless numbers along the shores, food for birds of prey, and creating an intolerable stench for miles inland. The fishermen made a fortune gathering them up and shipping them as iced fish as long as they remained good, but after this their avocation as fishermen was well nigh gone. Since that time, I am told, fish have never been so abundant as before. But the truth must be told. There can be no doubt that they have been ruthlessly slaughtered by fishermen. I am informed that companies formed for the purpose of making fish guano have captured the mullet in untold numbers in their seines, and used them with the sharks and other fish for their preparations. Catching mullet for roe is quite a business in its season, and many fishermen instead of returning those which are not gravid to the water, allow them to die on shore. The killing of the goose that lays the golden egg has again brought disaster, for many of these common fish seem well nigh extinct.

Not so very long ago flocks of roseate spoonbills and the scarlet ibis* were abundant, as well as white egrets and other lovely-plumaged birds, and the great flamingo and Carolino paroquets were often seen. Now, on account of ceaseless hunting, the latter are practically extinct, and the former are only seen on rare occasions.

Our collecting trip was a perfect success in every way. Christmas on the Manatee was uncomfortably warm, and in yards and gardens roses, Chinese hibiscus, the gorgeous purple-tracted Bougainvillea, and Cuban morning glories flaunted their gay flowers in the air, which was musical with the drone of honey bees and humming birds.

We chartered a five-ton boat, and with a skipper and cook and ten days' provisions aboard began our cruise. During low tides we searched the shores and sandy mud flats for shells, crabs and other marine life, and when these were covered we got under way and kept the dredge constantly at work. This implement, which consists of a double-bladed iron frame attached to a bag of twine netting, is dragged along the bottom by means of a rope attached to it, the boat being brought up into the wind, so that it barely moves. After it has been allowed to remain down for ten or fifteen minutes, scraping up as it does all that lies loose, it is drawn aboard and dumped; and this is always an interesting and exciting moment, much as is the landing of a fishing seine. Mollusks, ascidians, sponges, bryozoa, corals, shrimp, crabs, starfish, sand dollars and sea urchins, with curious bottom fish, and many other quaint and startling forms of sea life, are among the possibilities of the haul. These animals are surprised in their homes and appear as if astonished at this sudden and rude interruption of their daily affairs. It is fascinating work to the naturalist, and one becomes so interested and absorbed that he does not even want to stop to eat, and night always comes too soon. In running out of one of the passes between two keys one day, we put a line over, baited with a piece of meat. There was all at once a wild rush at the hook, which was followed a moment later by that of the crew. The cook dropped his dinner pots; to the naturalists the dredge, which had just been landed with specimens, suddenly lost its attractions, and even the skipper, always thoughtful of his boat, let go the helm and for a few minutes she steered herself. For a quarter of an hour there was a savage struggle; all hands on board against a single fish in the water: everybody cautioning everybody else to be careful and not let him get away, as he made fearful lunges and occasionally sprang from the water—a gleam of silver—and disappeared. At last he was on deck, an amber jack, a splendid fellow, weighing perhaps 35lbs, and after another severe fight of a few minutes he was dispatched by a few blows on the head with the cook's hatchet. The flesh of this fish is very dark, looking like beef, and is not considered good eating.

To the naturalist, no matter what branch of biology he may be interested in, the west coast of Florida is a delightful resort. The sea is alive with mollusks, crustaceans and radiates, with many forms of fish of wondrous beauty and interest, and other marine life. Numbers of birds and reptiles are to be obtained in the forests and swamps, and it is a paradise for insects. Something like five hundred species of trees are found in the State, a considerable portion of which belong to this region. Its flora is a mingling of the plants of the more northern region with those of the West Indies and Tropical America; the latter planted by that great sower of seeds, the Gulf Stream. Palms and pines, the magnolia and the mangrove, the live oak and the India rubber tree, struggle for existence in the same soil and flourish side by side. While we are searching to the ends of the world for the new and the rare, to our shame it may almost be said we know comparatively little of the natural history of Florida. Its geology is only a half-explained mystery, its vegetation is but imperfectly known, as constant discoveries attest, and no doubt large numbers of forms in the realm of the zoölogist people its shores and unexplored regions that are either new or have hitherto been credited only to the West Indies. Chas. T. Simpson.

Washington, D. C., Jan. 21.

*Mr. Ridgway, of the National Museum, informs me that he has never been able to obtain this bird from Florida, though it is not rare in tropical America and has been reported from Louisiana, etc. Ten or fifteen years ago a bird called in Florida the pink curlew and answering in appearance to the scarlet ibis was not at all rare about the bays and keys of the west coast.

Birds of Bridgeport, Conn.—Mr. C. K. Averill, Jr., recently prepared for the Bridgeport Scientific Society a brief annotated list of the birds found within ten miles of that city. The list is based on recent observations, but the earlier papers on the birds of Connecticut, that by J. H. Linsley (1843) and of Dr. C. Hart Merriam (1887) have been consulted and a number of species introduced on their authority. Credit is given to several local observers for records received from them, but the author is responsible for most of the species noted. The list numbers 246 species and contains some interesting information, though we feel inclined to complain of the brevity of the annotations. The recent breeding of *Gallinula galeata* near Stratford is noteworthy. The nomenclature used is that of the A. O. U. list, but the proofs have been carelessly read.

The Linnæan Society of New York.—Regular meetings of the society will be held at 8 P. M. at the American Museum of Natural History, Eighth avenue and Seventy-seventh street, on the 3d and 17th of February. No paper has been announced as yet for Feb. 3. On Feb. 17 a paper by Mr. B. Hicks Dutcher, "A Summer's Collecting in Southern California."—Jonathan Dwight, Jr., Secretary.

Words of Appreciation.

It is probable there is no weekly paper that comes to Maine which enjoys the wide popularity possessed by the Forest and Stream. Other papers have a larger circulation than this, but none is treasured more highly or quoted so often. It is read by country farmers, by village and city sportsmen, by backwoods lumbermen and trappers and guides, as well as business and professional men all over the State. The rough hunter reads it for tales of stirring adventures in the woods, the college student and summer vacationist read it for facts about canoeing and yachting; the crack shot scans its pages for target records, the dog fancier studies it for ideas about breeding and training and prize winning, and the modest naturalist patiently peruses the paper for new facts about the habits of animals. The editor of this paper has sat in a lumber camp forty miles from the nearest habitation and heard the foreman of the crew read Forest and Stream to over half a hundred delighted lumbermen, many of whom did not know one letter of the alphabet from the other; yet all were pleased and taught new facts by the paper that had come to them over snow-clad hills and icy ponds. Guides carry copies of it about in their pockets for months, and when the contents have been learned by heart it is turned over to some other guide or trapper as a precious keepsake. In short, Forest and Stream preaches the gospel of the forest to the woodsmen of Maine better than any other paper published.

Last week with the first number of its thirty-eighth volume Forest and Stream came out in enlarged thirty-two paged quarto form, with many of its old features amplified and several new ones added. It is the same old Forest and Stream, only larger and better and more worthy of patronage. Under its present form and management it is as near perfect in its line as it is possible for a paper to be. Its opinions are sound, its statements are reliable, and its influence wide and constantly increasing. May its triumphs continue until everybody shall recognize the merits of Forest and Stream.—*Bangor News.*

Game Bag and Gun.

The full texts of the game laws of all the States, Territories and British Provinces are given in the *Book of the Game Laws.*

INTRODUCTION OF THE CHOKEBORE.

In looking over the shelves of a book store the other day, it was my good fortune to obtain a copy of "The American Shooter's Manual," by a "Gentleman of Philadelphia County," published in 1827 by Carey, Lea & Carey. It was copyrighted in May of that year. The various articles on "Shooting," the "Dog," "Gun," "Ducks," etc., are very interesting, and the directions for using the gun, etc., are remarkably clear and concise. Among other subjects treated of is that of the boring of gun barrels. As the book is probably quite rare, it may be well to give the quotation in full:

"Not many years since," the author writes, "bell muzzles, as they were called, were all the rage, but they are at present entirely out of use. Mr. Johnson suggests that the bore be made somewhat larger at the breach [*sic*] and some inches up the barrel." The author then quotes Mr. Johnson's account of the manner in which he discovered this method. Johnson purchased a gun and was delighted with its shooting qualities. On examination he found it had this peculiarity of bore, and so he had a very inferior gun rebored by the method he gives, with results "that far passed his most sanguine expectations." This Mr. Johnson was an Englishman who wrote "The Sportsman's Encyclopedia," 1831. Our author seems to quote from an earlier work.

In the volume entitled "Sport with Gun and Rod" (edition of 1883) published by the Century Co., we read on page 781 from the paragraph on chokebored barrels that "Colonel Hawker, in 'Instructions to Young Sportsmen,' London, 1814, had very strong opinions against chokebores. We next find mention of chokeboring in 1835, in Deyeux's 'Le Vieux Chasseur.' Mr. Long in his 'American Wildfowl Shooting,' New York, 1879, gives the invention of a really successful mode of chokeboring to Jeremiah Smith, of Rhode Island, who discovered its merits in 1827 [!]. From him it was learned by Nathaniel Whitman, of Mansfield, Mass., and the method practiced by Joseph Tonks, of Boston, 'in 1870,' and these chokebores of Tonks came rapidly in favor with duck shooters."

It certainly is a curious coincidence that Mr. Smith, who is supposed to have been the inventor of the chokebore on this side of the water, should have hit upon this plan in the very year in which an American author quoting from an English book described the method of boring the gun with a choke.

Granting that it is perfectly possible for Mr. Smith to have discovered this method on his own account, yet on the other hand it is just as possible, nay, perhaps a little more probable, that he happened upon the plan in the pages of the "Manual" (published early in that same year, 1827), and being of a quick and practical disposition put the method at once into actual operation.

If this supposition is correct, we are enabled to trace the chokebore back from Tonks in 1870, through Whitman to Smith, who on his part obtained the idea from the English author Johnson through "The American Shooter's Manual."

We conclude, then, that the chokebore was introduced into this country in 1827, rather than that it originated here. However distasteful this view of the subject may be to us as Americans, yet the evidence seems to be largely in its favor. J. Stuart Auchinclos.

Philadelphia, Pa.

GOSSIP OF GAME AND GUNS.

Ruffed grouse have been scarcer in this vicinity during the season just closed than at any time since '69. Two of my brothers, who live in Boston, were here the last of September and the three of us spent a week hunting grouse and woodcock. The total bag for the three guns was ridiculously small, and we covered from six to ten miles a day.

A feature of our week's shooting that compensated to some extent for the poor bags was the excellent work of our six months old cocker puppy, a Brant—Jill whelp from the kennel of Dr. Nicol, of Cookstown, Ontario. The doctor told us that this youngster would make a good fielder, and subsequent events have shown that he knew what he was talking about. Half the grouse we killed were shot over him. He would retrieve as well as an old dog, and a ruffed grouse is a cumbersome mouthful for a pup that age. More than that, he could keep going as long as we could, and show fewer signs of fatigue.

In '81, our last previous 'poor grouse year, water fowl were unusually plentiful, and by a strange coincidence it was the same this season. The great banks of teal that used to visit us in September seem to have gone to stay, but black ducks and bluebills were here in immense numbers. There was about the usual quantity of whistlers and broadbills.

The last week in October we had a cold snap, accompanied by a snowstorm, that failed to find a parallel within the memory of that well-known citizen, the "oldest inhabitant." On the Saturday evening of that week Samuel Vanwart, who shoots for the St. Paul market, taking his gun and seven "catteridges," all he had loaded, sallied forth amid drifting snow to spy out the land and see if there were any ducks left. He went down to the Dugway, opposite Layetown, on the St. John River, and found black ducks in the air in "families of tens and dozens." It was nearly sundown. Seating himself on the snow in plain view of any duck that chanced to look, and accepting no shots where he could not "line up" several ducks in range, in twenty minutes he killed thirteen ducks and exhausted his ammunition. Then he sat there and saw about thirty good chances go by. Any one would not need to be acquainted with Samuel to imagine his feelings, but his oldest friends would fail to reproduce the choice Anglo-Saxon in which they found vent.

He shoots a 14-bore under-grip English gun, with 36in. barrels. In leading, he "doesn't pay any attention to this foolishness of drams and ounces, but puts in about the right amount of powder and shot, wads well, and crimps with his fingers." There is little doubt that he has killed more ducks than any man in this Province. I heard him tell a young city tenderfoot last summer that an old hand