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II.—MISCELLANEOUS NOTES AND CORRESPONDENCE RELATIVE TO THE WHITE-FISH.

A—THE WHITE-FISH OF THE GREAT LAKES.

1.—LAKE SUPERIOR.

MONTREAL, *November* 2, 1872.

DEAR SIR: Touching the white-fish sent by me to the Smithsonian from Michipicoten, so long a time has elapsed since then that I cannot recall the particular circumstances. This I remember, however, that in Michipicoten Bay itself there is no great disparity in the size of the *Coregoni*. The produce of our own seines and nets I always regarded as composed of but one species of white-fish, and the same as that caught everywhere in the lakes and rivers of the North; but in spring we sometimes had sent to us from a small outpost at Bachewaino Bay a fish or two, longer than our own and much thicker and heavier. Without having entered into any careful examination, I used frequently to declare my opinion that they might be, possibly, a distinct species. It is very possible that a skin of one of these Bachewaino fish might have been forwarded by me to the Smithsonian, with other subjects of natural history. They are found in Bachewaino Bay, and I am told also, by a gentleman who was long a resident on the north shore, that Pancake Point, farther eastward, is a famous locality for their catch. I never had an opportunity of submitting these white-fish to a close comparison with the large specimens taken at the Sault Ste. Marie, below the rapids, but I conjecture they might be of the same species. In this particular, however, I might have easily fallen into mistake. For the table, these are a drier fish than the smaller common white-fish, and they occur in far less numbers in the places to which they resort. Occasionally a very large white-fish is taken about Fort William, no others approaching it in size, and they are looked upon as overfed monstrosities by the people at the posts. At Norway House, north end of Lake Winnepeg, where I resided many years, I was in the custom of sending a fisherman, late in the fishing season, in October, to the narrows of a river twenty miles distant, to obtain a larger and finer fish than what were to be had at the place. The reason for sending was, of course, the fish being larger, and equal in quality for food to those caught nearer. Still, upon inquiry I could never get the natives to say that it was of a different kind. They seemed to think the difference in size arose from the greater abundance or better quality of their food.

I believe Major Long was correct in saying that the white-fish run up the Michipicoten River to spawn, but they cannot and do not run up far, for very high falls and long sweeps of raging rapids obstruct their course in both the main river and its tributary, not far from the Great Lake. Half a mile above the station I have assisted in seining white-fish at the spawning season, and succeeded occasionally in making a good haul. These fish must have come from the bay or lake, for they could never have descended the falls in safety, and the native fishermen (in all such cases good judges) considered them lake-fish.

Can you inform me whether you have ever received from the north shore of Lake Superior any specimens of the "Mucqua trout" of the natives? as translated by me, the "bear trout," or *Salmo ursinus*. It is still fatter than the siskowet, and can be melted, with little residue, into oil. I have named it a distinct species, following the idea of the Indians, and observing it to possess a different shape of body and head entirely from the siskowet. It is found in small numbers throughout the lake, along the north shore, but, like the siskowet, prevails most in the neighborhood of the Pic. Can it be hybrid between *namaycush* and the siskowet?

GEORGE BARNSTON.

2.—LAKES ERIE AND ONTARIO.

DOMINION OF CANADA,
Hamilton, Ontario, November 18, 1872.

SIR: I had the honor to receive from the minister of marine and fisheries of this Dominion, recently, a circular directing me to procure specimens of white-fish from those localities of my district situated in Lake Ontario and Lake Erie, and to forward the same to you; and to accompany them by any remarks on their habits and varieties I may think of interest.

In obedience to the instructions received, I now send you four large white-fish I obtained in Lake Erie, near Port Dover, in the township of Woodhouse, county of Norfolk, and province of Ontario, in this Dominion. You will find the fish male and female.

I also have the honor to send you at the same time four smaller white-fish I procured in Lake Ontario, at Wynona, in the township of Saltfleet, in the South Riding of Wentworth, province of Ontario, and Dominion of Canada. I believe you will also find the latter four fish male and female.

The white-fish at this season of the year, fall and winter, feed on small shell-fish. This you can ascertain yourself by analyzing the contents of their stomach. In spring and summer they feed on a kind of shrimp-like insect; and from my knowledge and experience I have never known them to change to any other kind of food than those two kinds now described to you by me.

The white-fish spawn, both in Lakes Erie and Ontario, on the reefs and rocks, during the month of November. The eggs dropping into the crevices of the rocks are protected from suckers, a fish always on the alert at this season of the year to devour the eggs.

The two specimens sent herewith, you will please find by examination differ from each other in many respects. This you will be able to find out to be the case only by close study and observation. The Lake Ontario fish you will find to be a finer and superior fish than the Lake Erie white-fish, both in delicious delicacy of flavor and taste, and the whiteness and richness of the flesh. Still as regards the food for this fish, in both lakes, I have in every instance and on all occasions found it the same. The fish live by suction.

There is an observable difference in the shape of the white-fish of Lake Ontario as compared with the shape of the white-fish of Lake Erie.

Thus you will please find that the Lake Ontario white-fish are rounder and broader on the back, while the Lake Erie white-fish are flatter and sharper on the back. You can also find out other little differences by actual measurements of the fish, and this at the different parts of them; and which I have been able, by strict accuracy and study, to set at rest.

I have packed the eight white-fish I now send you in cut straw in a small box, which I understand will preserve them sufficiently for your purpose until they reach you at Washington; and I shall feel greatly honored if your learned views and researches will hereafter in any manner correspond with my humble assertions regarding this delicious fish.

I have the honor to be, sir, your obedient servant,

JOHN W. KERR,

Fishery Overseer, Hamilton District.

Professor SPENCER F. BAIRD,

United States Fishery Commissioner, Washington, D. C.

WOLFE ISLAND, *December* 4, 1872.

SIR: In obedience to instructions from the minister of marine and fisheries, I have the honor to send you, by this day's express, some specimens of our white-fish, taken in Lake Ontario, and I have been further instructed to accompany them by such remarks on their habits and varieties as I might think of interest. I would therefore beg to state, from having long experience as a fisherman, that the white-fish which are found in the Canadian lakes are social in their habits, moving about in shoals or great numbers. Three species may be enumerated, quite distinct from each other. The first has a very small head and a rounded back, and is known as the "Bow-back." This is considered the best species for food. The second has also a very small head, and a dark, round body, something resembling that of a sucker. The members of

this species are the smallest, upon an average, among the white-fish tribe, and they are, moreover, inferior to those of the other two species. The third species, and the one most common in the lakes of this part of Canada, has a common-sized head, and a regular and symmetrical body. The fish of this species average in weight about three pounds, although some are caught which go as high as ten pounds. In the lakes of the back country they are said to be generally larger, averaging as high as five pounds. In Lake Ontario white-fish are caught in the early spring, at some considerable distance from shore, and in about 200 feet of water; but about the 1st of June, as the summer approaches, and the weather gets warmer, they approach the shore and are then caught in great numbers, upon their favorite feeding grounds, which consist of a sort of a honey-combed rock, in about 30 feet of water. Their food consists chiefly of small worms, obtained from the porous rock of the bottom, and different kinds of aquatic insects. About the 1st of August, as the water begins to be uncomfortably warm for them, they retreat precipitately toward the deeper and cooler portions of the lake, and it is at this time that we find them in their best condition. About the middle of October they return toward the shore for the purpose of spawning, arriving at the proper locality about the middle of November, or from that until the 1st of December, depending upon the severity or mildness of the season; for they do not deposit their spawn until the water has reached a certain temperature, which must be something near 40° F. The fish, like some others, eat nothing during their spawning season, after which they retire to the deep water until the next spring.

The specimens of white or any other kinds of fish which inhabit our waters, as well as any information relating to their habits and varieties, will be cheerfully sent to you, when required.

You requested me to send a bill of any costs or expense incurred in sending you specimens of fish. I beg to state that there is no expense whatsoever on our part.

I have the honor to be, sir, very respectfully, your obedient servant,

PETER KIEL,
Fishery Overseer.

Professor S. F. BAIRD,
Washington, D. C.

WOLFE ISLAND, *January* 16, 1873.

SIR: I beg leave to acknowledge the receipt of your letter of 10th ultimo, which came to hand in due time, but which I did not answer immediately, in hope that the weather would moderate and that some white-fish might be taken, from which I could procure for you better defined specimens than those previously sent, which were the best I could obtain at the time, the weather being exceedingly cold and

stormy during the month of November; but unfortunately the stormy weather continued, and no white-fish were secured.

From thirty years experience as a fisherman, and after obtaining all the information possible from others on the habits of white-fish, I beg leave to remark that during the month of November the white-fish are known to unite, or join in pairs, male and female, and that they approach the shore for the purpose of spawning. Should the weather be very cold they move more rapidly and arrive at their destination about the 15th. Their favorite place is a sheltered or land-locked bay or inlet having a sandy or gravelly bottom. When in from 10 to 20 feet of water the female, endowed with an instinctive knowledge that her time has come for depositing a part of her spawn, selects a spot and commences to dig vigorously with her head, at the same time moving the tail rapidly to stir the sand or gravel; in a short time she forms a nest about two inches deep; the male, staying close by, seems to be attentively watching her movements. When the nest is satisfactorily arranged she ejects a quantity of spawn into it. The male immediately darts alongside of her and impregnates it with the milt. He then moves off a little way while she covers it partly over with her nose and tail. They remain near the spot two or three days, until all the eggs are deposited in the same nest, when they return to the deep in search of food, leaving the eggs and young fish, when hatched out, to shift for themselves. In the meantime the spawn, being heavier than water, remains on the bottom, which it would do even if not partly covered over, nature having provided an adhesive substance which fastens it to the sand or gravel. It remains about one hundred days, when the young fish emerge into life. While they were exposed for so long a time we cannot fail to admire the beautiful and mysterious laws of nature manifested in their protection from the severity of the weather, from predacious wild fowl, from voracious fish and from reptiles, which during the winter are in a semi-dormant state.

As soon as the young fish are strong enough to move off they gradually work out into the deep, where they remain three or four years, when they attain their full or average size, and move round periodically with the parent-fish to their various feeding and spawning grounds.

White-fish are very prolific, and would multiply very rapidly if not destroyed by a reckless mode of fishing. Many valuable fishing-grounds have been rendered useless by hauling seines during the breeding season, since, in such case, the parent-fish are not only destroyed, but the spawn is disturbed by the seines dragging along the bottom, so that it will not hatch. Another destructive mode of fishing is to set gill-nets across the mouths of bays or inlets, where the fish, in accordance with their habit, enter in periodically; these nets turn their course some other way, and it will be clearly understood that they are so social in their nature, that in whatever direction the main body of them incline the others are sure to follow. Our fishery laws have done much already toward the prevention of such abuses.

The white-fish is of a fine organism, and, being entirely destitute of teeth, is neither predacious nor yet very voracious in its nature, but lives on the most simple fare, which consists principally of small worms and insects that abound in great numbers among the plants and porous rocks on the bottom.

It is my candid opinion that the propagation of white-fish by artificial means would be attended with great difficulty, since when they are hatched out the trouble would be to procure food for them; but I see no serious obstacle in the way of stocking lakes or rivers where the aquatic plants and grasses closely assimilate those from whence the parent fish is taken. In such case they should be moved in the fall or early spring, since transporting them in a small quantity of water for any length of time in hot weather would be very likely to kill them.

The North American white-fish is of the most delicate structure. It is beautiful and symmetrical in form, always clean and healthy in appearance, and is free from any parasites, either internal or external. It is unsurpassed in its delicious flavor and healthy quality as an article of food by any other fish.

The greatest number of white-fish are caught during the month of July.

White-fish cannot be caught with hook and line at any season of the year.

I have the honor to be, sir, your most obedient servant,

PETER KIEL,
Fish Observer.

Professor S. F. BAIRD, *Washington, D. C.*

B—THE WHITE-FISH OF EASTERN MAINE AND NEW BRUNSWICK.

By CHARLES LANMAN.

This fish, the celebrated *attihawmeg* of the great northern lakes, so frequently described by Arctic voyagers as the most delicious of all purely fresh-water fishes, is found in considerable numbers in Lake Temiscouata, where many are taken every autumn by the French Canadians, who come over from the Saint Lawrence to fish for them, and call them *poisson pointu*. The English lumbermen call them "gizzard-fish." They are taken occasionally along the Madawaska River, and the writer has caught them with rod and line below the falls of that river, at its confluence with the Saint John, in the early part of summer. At these falls the inhabitants take about forty barrels every autumn, which are cured in pickle for winter use. The white-fish abounds in all the Eagle Lakes, at the head of Fish River, a tributary of the Upper Saint John,

and in the Saint Francis Lakes, at the stream's head. In these lakes, it is caught abundantly every autumn, by torch-light, with dip-nets. It has not been observed in any of the lakes or rivers which discharge into the Gulf of Saint Lawrence, nor yet in any of the waters of Nova Scotia.

Some years since, this fish was abundant in the Grand Lake, where the writer, in the month of May, saw great numbers taken out of gill-nets set for gaspereau, and thrown away by the fishermen as worthless. At the same time, the writer caught a number of them, with rod and line, in one of those small pieces of water connected with the Grand Lake, usually called "key-holes." It is occasionally taken in the Saint John, throughout its whole extent. In the harbor of Saint John, in spring, it has been often caught in the seines and weirs with the gaspereau, and salted with that fish, because its value was not known.

It is probable that the similar fish found in the lower part of the Saint John have strayed from the great lakes at the sources of its upper tributaries, and have been swept over the Grand Falls by some extraordinary flood; once over those falls, there is no possibility of return. The white-fish seen by the writer have seldom exceeded a pound and a half in weight; but they are taken in Lake Temiscouata of the weight of three pounds, and even more. It is an inhabitant of all the interior lakes of America, from Lake Erie to the Arctic Sea. Several Indian tribes mainly subsist upon it; and it forms the principal food at many of the fur-posts for eight or nine months of the year, the supply of other articles of diet being scanty and casual. Its usual weight in the northern regions is from two to three pounds; but it has been taken in the clear, deep, and cold waters of Lake Huron of the weight of thirteen pounds. The largest seen in the vicinity of Hudson's Bay weighed between four and five pounds, and measured twenty inches in length and four in depth. One, of seven pounds' weight, caught in Lake Huron, was twenty-seven inches long. Very recently, the writer had an opportunity of seeing some fresh specimens of the white-fish of Lake Erie, and was satisfied of their identity with the "gizzard-fish" of the Saint John and Lake Temiscouata.

During the summer, the white-fish is not seen in Lake Temiscouata, and it is then supposed to retire to the depths of that unusually deep and cold lake. In October, it draws near the shores, and ascends the Tuladi River, for the purpose of spawning. It ascends the river during the night, and, having deposited its spawn, returns as quickly as possible to the lake. It is when this fish draws near the shore, prior to spawning, that the fishery is carried on, chiefly at a little bay in Lake Temiscouata, into which the Tuladi discharges its waters. At the same time, the great gray trout (*Salmo ferox*) follows the white-fish to the shore, and preys upon it. While the nets are set for white-fish, the fishers, with torch and spear, attack and capture the *Salmo ferox*, frequently of large size; and hence this latter fish has acquired the name of *tuladi* from the river to which it is attracted by its favorite prey.

The white-fish feeds largely on fresh-water shell-fish; its stomach, in

consequence, acquires an extraordinary thickness, and resembles the gizzard of a fowl; hence its popular name of "gizzard-fish." The stomach when cleaned and boiled, is a favorite morsel with the Canadian *voyageurs*.

C—NEW SPECIES OF ARGYROSOMUS AND COREGONUS.

By James W. Milner.

Argyrosomus Agassiz.

This genus was separated from *Coregonus* by Professor Agassiz in 1850.* The principal character referred to as distinguishing it is that the lower jaw is the longer. The examination of a number of species has discovered, in addition to this character, a constant difference in the form of the supraorbital bone. In *Coregonus*, it is short and broad, and does not reach the middle of the orbit. In *Argyrosomus*, it is long and narrow, and extends considerably beyond the middle of the orbit. The premaxillaries in *Argyrosomus* are much shorter; and this character and the projection of the lower jaw make the snout more pointed than in the other group. Minute teeth are present upon the premaxillaries and tongue. Professor Agassiz refers to the latter character as if it were peculiar to this genus; but, in the dried heads of *Coregonus albus*, (not of Agassiz,) teeth are apparent on the premaxillaries.

Argyrosomus Hoyi Gill, (MSS.)

Argyrosomus Hoyi Gill (MSS.); Hoy, Trans. Wisc. Acad., vol. 1, p. 100, 1872.

The cisco of Lake Michigan,† not to be confounded with the cisco of Lake Ontario, is a fish frequenting the deep waters. It is taken in considerable quantities, at depths of from 30 fathoms to 70, and is the principal food of the salmon or Mackinaw trout. Specimens were sent to the Smithsonian Institution, in 1870, by Dr. P. R. Hoy, of Racine, Wis., obtained in that vicinity, from which Dr. Gill made diagnostic notes, and adopted the name of *Argyrosomus Hoyi*. In a list of species of Lake Michigan, published in the Transactions of the Wisconsin Academy of Sciences, Dr. Hoy included Dr. Gill's manuscript name.

In 1871, while prosecuting work for the United States Commission of Fisheries, I collected specimens of the species in abundance, all of which were lost in the great fire of Chicago. In 1872, I obtained them in Lake Superior, and from one of this collection the following description is made:

The differences between this species and the common "lake-herring" (*A. clupeiformis* Mitch.) are quite prominent. The orbit in the cisco is very large, encroaching a good deal upon the frontal bones. The frontals are in consequence abruptly diminished in width near the posterior edge of the orbit, and in the superior aspect of the head expose the upper border of the eye. The exposed portion of the shoulder-girdle is of less width;

* Lake Superior: its Physical Character, &c., p. 339.

† For account of habits, see page 35.

the upper portion of the clavicle (Parker) narrows abruptly to a slender blade. The premaxillaries, though higher, project forward, so as to render the snout more acute. The snout is shorter, as is also the maxillary. The mucous tubes of the head are coarser and more prominent.

From *A. nigripinnis*, described below, it differs in having a shorter head, a more prolonged snout, slightly less length of maxillary and mandible, as well as less width of head and interorbital area.

Body compressed; deeper than in most of the species of the genus. The height of the body is less than the length of the head. The distance from the snout to the nape is but little more than the length of the mandible, (1.9 inches to 1.3 inches.) The width of the interorbital area much less than length of snout. The length of the snout more than the length of operculum. The length of the maxillary is more than the greatest width of head. The muzzle is prolonged. The lower jaw extends rather beyond the premaxillaries. The maxillary is long, reaching beyond the center of the eye. The submaxilliary is long, and of moderate width. The orbit is large. Minute teeth are present on the tongue. The preopercular bone projects backward at the lower posterior angle.

The height is .22¼ of the length;* the length of the caudal peduncle,† .16; the distance from the snout to the dorsal fin, .50; the distance from the snout to the anal fin, .71; the length of the head is .25¼; the distance from the snout to the nape is .19; the width of the head is .27¾ of length of head; the width of the interorbital area is .20¼; the length of the snout is .31; the length of the maxillary is .35; the length of the mandible is .51½; the diameter of the orbit is .24.

Br., 9; D., 3-10; A., 2-10; C., 9-18-8; P., 15; V., 11; scales on lateral line, 73; number of rows of scales above lateral line, 8; below lateral line, 12. Length, 11.7 inches.

National Museum, No. 10756. Locality, Outer Island, Wisconsin, Lake Superior.

ARGYROSOMUS NIGRIPINNIS Gill, (MSS.)

Argyrosomus nigripinnis (Gill, MSS.); Hoy, Trans. Wisc. Acad. Sc., vol. 1, p. 100, 1872.

The black-fin ‡ is not known from any locality thus far other than Lake Michigan. It is found in the deepest portions of the lake, and is especially abundant in Grand Traverse Bay. Specimens were received at the Smithsonian Institution from Dr. Hoy, in 1870. The only species closely related to it is the one just described. From this it differs in the shorter head, snout, maxillary, mandible, and the greater width of head and interorbital region. There is a greater number of scales in the lateral line; the fins are more developed; and the height of the fish is slightly greater. It attains a much greater weight than *A. Hoyi;* its average

* Measured from premaxillaries along lateral line to end of scales.

† Measured from a point vertical to the last ray of the anal fin.

‡ For reference to habits, see page 35.

being about one and a fourth pounds, while *A. Hoyi* reaches a maximum of less than one-half pound.

The height of the body is equal to the length of the head. The distance from the snout to the nape is much more than the length of mandible, (2.28 inches to 1.52 inches.) The width of the interorbital area is equal to the length of the snout. The length of the snout is less than the length of the operculum. The length of the maxillary is less than the greatest width of the head.

Body compressed; deeper in proportion to length than other species of the genus. The bones of the head are stronger and more prominent than in other species; mucous tubes on preoperculum, on frontals, and parietals large and prominent.

Teeth very minute, yet present on premaxillaries and tongue.

The height is .22 of length; the least height of tail is .07¾; the length of the caudal peduncle is .13½; the distance from the snout to the dorsal fin is .47⅓; the distance from the snout to the anal fin is .78½; the length of the head is .22⅔; the distance from snout to the nape is .16¾. The width of the head is .34¾ of the length of the head; the width of the interorbital area is .22⅓; the length of the snout is .22½; the length of the maxillary is .32; the length of the mandible is .48½; the diameter of the orbit is .25½.

Br., 9; D., 3–10; A., 2–10; C., 10–18–9; P., 16; V., 12; number of scales in the lateral line, 80; number of rows of scales above lateral line 8; below lateral line, 11. Length, 16.5 inches.

National Museum, No. 12455. Locality, Grand Haven, Mich., Lake Michigan.

3.—COREGONUS COUESII, *sp. nov.*

A specimen of a white-fish was taken in Chief Mountain Lake, at the eastern edge of the Rocky Mountains, by Dr. Elliott Coues, U. S. A., surgeon and naturalist of the northern-boundary commission.

This specimen is very different in its type of form from any species hitherto described from this continent. In Günther's arrangement of the species of *Coregonus*, it would be placed in group (*a*), with the upper jaw produced into a cutaneous appendage. In this particular, it resembles *Coregonus oxyrhynchus* Lin. and *C. Lloydii* Günth. Unlike these species, it is an elongate fish, the proportion of height to length being much the same as in *C. Williamsoni* Gir. and *C. quadrilateralis* Rich.; it also resembles this type of form in the narrow supplementary bone of the maxillary, and the former species in the shape of the maxillary.

The only previous reference to a fish supposed to be of this genus from the Saskatchewan River is in some remarks appended to the description of *C. labradoricus* in the *Histoire Naturelle des Poissons*. Valenciennes refers, in the most undecided manner possible, to a fish which he believes to be a salmonoid, and makes his diagnosis from a drawing. There is, in fact, no direct evidence in what he says to prove that the specimen was in his possession. He admits that he is "not able to

determine with certainty the genus;" and, after stating that "my first impression was to make it a *Coregonus*, since I have placed the design by the side of the other species of the same genus," ends this most uncertain and undecided effort to determine its relationship with the question, "Could one name it *Coregonus angusticeps?*"

It may be that the specimen at hand is a fish of the species indicated in the above name, the ascribed locality heightening this possibility; but there can be no consideration of the matter that will decide it, and the name is consequently passed over. The character given of 55 scales in the lateral line is very far from agreeing with Dr. Coues's specimen, and, in fact, with any description of a *Coregonus* we have seen, and may indicate that the author was right in his hesitancy to decide upon the genus.

The most marked feature is the extensive prolongation of the snout, which protrudes far beyond the opening of the mouth. The head narrows regularly toward the anterior of the frontals, where two strong angles are found narrowing the head abruptly at the point where the short supraorbitals join, and the frontals and nasals continue forward in a narrow, blade-like extension. The supraorbitals form a bold prominence at the anterior of the orbit. The maxillary is short, dilated at its posterior portion, and has a narrow supplementary bone. The premaxillaries are somewhat retroverted, and have very little width, making the muzzle thin and narrow, as it is in *C. quadrilateralis* and *C. Williamsoni*. The adipose fin is large, attached to the body almost to the posterior extremity, and is ensheathed in scales for a considerable distance from the dorsal line.

The greatest height of body is equal to the length of the head. The least height of tail is equal to the length of the snout. The lengths of the caudal peduncle, of the snout, and of the mandible are equal to each other. The width of the interorbital area is equal to the length of the maxillary.

The height is .22½ of the length without the caudal; the least height of tail is .07½; the length of the caudal peduncle is .12½; the distance from the snout to the dorsal fin is .44¾; the length of the base of the dorsal fin is .12½, its greatest height .14, and the length of the last ray .06⅜; the distance from the snout to the anal is .73⅛; the length of its base, .09, and its greatest height .13⅛; the length of the middle caudal rays is .08, and of the external rays .15¼; the distance from the snout to the pectoral fin is .21½, and its length is .17½; the distance from the snout to the ventrals is .51½, and its length is .15.

Br., 9; D., 3–12; A., 4–10; C., 6–18–6; P., 17; V., 2–11; the number of scales in the lateral line is 88; the number of scales above the lateral line is 8; below the lateral line, 8–5. Length, 13.6 inches.

National Museum, No. 14146. Locality, Chief Mountain Lake. Collector, Elliott Coues, U. S. A., surgeon and naturalist of the northern boundary commission.

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