

CONTRIBUTIONS TO THE HISTORY OF THE COMMANDER ISLANDS.

No. 2.—INVESTIGATIONS RELATING TO THE DATE OF THE EXTERMINATION OF STELLER'S SEA-COW.

By LEONHARD STEJNEGER.

Prof. A. E. Nordenskjöld in "The Voyage of the Vega" (New York, 1882, pp. 606—608) has given an account of the researches made by him on Bering Island, in order to throw light on the history of the extinction of the Northern Sea-cow (*Rytina gigas*), and from information obtained there, he thinks it "*proved*" that the statement of v. Baer and Brandt, that the Sea-cow became completely exterminated twenty-seven years after the discovery by Steller, or in 1768, is "undoubtedly incorrect." He even adduces "evidence" that "the death-year of the Rhytina race must be altered *at least to 1854.*"

As to this latter statement, it was remarked in my preliminary report (Proc. U. S. Nat. Mus. VI., 1883, p. 84*) that I was compelled to regard it as erroneous, the promise being made at the same time to give my reasons based upon a thorough investigation, the detailed account of which is the object of the present paper.

It is proper, however, to remark at the outset, that it is a more or less hazardous business to draw scientific conclusions from statements like those made to Professor Nordenskjöld. In matters of this kind and so remote in time the memory of the natives is rather dull, and most of them have but faint ideas respecting the exact time and sequence of events much nearer the present times than those here in question. I should deem it unadvisable, even if nothing else pointed against Nordenskjöld's conclusion, to reject precise evidence almost contemporaneous with the event, because of such vague testimony.

As to the first proof of Professor Nordenskjöld, viz, the statement of a *creole*, 67 years of age, that his father, who died in 1847 at the age of 88, and who at the age of 18 (therefore in 1777), came to Bering Island, during the first two or three years of his stay there, that is, till 1779 or 1780, saw sea-cows feeding on sea-weed, my investigations have given somewhat different results, and I therefore quote my conversation with the same man in the very words taken down by me from his own mouth.†

"Pitr Vasilijef Burdukovskij says that he was born in 1819, and is therefore now (1882) 64 years old.‡ Having been asked why, in 1879, he

* In this place an important typographical error has occurred, the word "*natives*" in the fifth line from above having been erroneously used instead of "*latter.*"

† In order to avoid errors on account of my rather imperfect knowledge of the Russian language, the kind assistance of Mr. Chernick, the agent of Hutchinson, Kohl, Philippeus & Co., was secured.

‡ In the official list of the natives, his age is given as 61: this probably, however, being a mistake. His statement above seems to be correct, because he pretends to remember from his childhood the visit of Admiral Lütke on the island in 1828, what would hardly be probable, if he at that time had been only 6 years of age.

had said he was 67 years old, he denies this and says that Nordenskjöld's account rests on a mistake. His father, Vasilij Burdukovskij, died in 1842, at the age of 88 years.*

I told him that Nordenskjöld in his book gives the year of his death as 1847, but he maintains that 1842 is correct, and that he told Nordenskjöld so. He remarks, as to Nordenskjöld's statement that his father came from Volhynia, that he expressly said *Vologda*, his father being originally a native of the town Lalsk of that province.† The statement that he was 18 years old when he arrived at Bering Island is correct.

He remembers but very little of what his father told him about the sea-cow, but recalls that nothing else than the kidneys were eaten, and that the hide was used for "*bajdará*," but no *bajdará* covered with the hide of the sea-cow lasted so long that he himself has ever seen one or even the remnants of one. I asked him repeatedly if the sea-cows were not killed in order to get at the heart, but he answered every time that it was for the sake of the kidneys (*Russ.* почки‡), and that Nordenskjöld has misunderstood him. Nordenskjöld's statement that the hide was so thick that it could be split in two, one hide thus being sufficient for one *bajdará*, is equally erroneous. The hide was thinned down but not split,§ and for a twelve-man *bajdará* two hides were required. He does not understand how Nordenskjöld can have misunderstood him so completely." Such was his statement, written down *verbatim*, with Nordenskjöld's book at hand, and its greater correctness compared with that reported by Nordenskjöld is corroborated by several other facts and statements mentioned in the foot-notes. Burdukovskij is still in full possession of his mental and physical faculties.

Recalculating Nordenskjöld's computation we arrive at the following conclusions: Vasilij arrived at Bering Island in 1772 (or 1770, if Volokitin's statement of his age is the correct one), and if, during the first two|| years of his stay there, he really saw living sea-cows, this animal has been in existence until 1774 (eventually 1772), or 6 (4) years longer than supposed v. Baer and Brandt.

However, if we consider that Vasilij was sixty-five years of age when

* This statement is corroborated by Mr. Volokitin, who asserts that old Burdukovskij had been dead five years, when he (V.), in 1847, came to Bering Island. He gives his age as 90 years. Mr. Volokitin's statements are fully trustworthy.

† I have seen here a page of an old journal containing *inter alia* that "Vasilij Burdukovski, from Lalsk," died in the same year as the journal was written. Unfortunately the page is without date, but the year 1841 is mentioned in another place in such a connection as to make it probable that the journal was written in the year following.

‡ Steller gives the weight of the kidneys as more than 36 pounds.

§ Compare Steller's statement, that the true skin "ist etwas dicker als eine Ochsenhaut." That the hide was "thinned down," probably means that the exterior crust, which was about an inch thick, and consisting of coalescent hairs(?), was removed.

|| Burdukovskij says, "two or three years"; we would hardly be justified in adopting the larger figure.

his son was born, and that consequently the latter hardly has any recollection of stories told earlier than the seventy-third year of his father; further, that he was only 23^d years of age when his father died, and that in 1879 (the year in which Nordenskjöld visited the island) thirty-seven years had passed, it will not be unreasonable to suppose, that the statement of the father of what he had heard about the sea-cows, shortly after his arrival at the island, in the course of so long time, intentionally or unintentionally, took such a form as if he had seen the sea-cow himself. Or, it may well have been, that Vasilij, who arrived four years after the last sea-cow was killed, and consequently during his early residence must have heard many accounts about this remarkable animal, retold them so often, that at last he even convinced himself that he had shared in the interesting events! It may be that, being a fur-hunter and adventurer, he possessed a touch of the bragging tendency common to those people, so as not to be especially particular about such trifles, as to report himself as an eye-witness, even if it was not literally true, and, as everybody knows, a story thus receiving weight and authority is much more interesting than one merely recorded at second-hand. Besides, it is not to be overlooked, that there was nobody living on the island who could contradict him.

That we are justified in interpreting his statement in the manner above indicated is, moreover, evident from the fact that Dmitri Bragin, who wintered on Bering Island *the same year Vasilij arrived there* (1772), and kept a journal during his stay at the request of Pallas, enumerates all the large sea-mammals of the island, *with the exception of the sea-cow*. To an unprejudiced mind this would seem to prove that the animal not only was exterminated at that time, but had been extinct for some years.

And now I think we are through with the first evidence.

About the sea-cow which, according to Nordenskjöld, was said to have been seen about the year 1854, I made a thorough investigation, with the kind assistance of Mr. Chernick. I have given it below *verbatim*. I need hardly say, that both witnesses were examined separately, so that the one should not know the statements of the other. The questions were written down *beforehand*, and so constructed that they would give no clue to the answer; they were asked exactly as they are written, and the witness was given ample time for a well-considered answer. *Without taking precautions of this kind, it would be comparatively easy to get such people to answer a question in the manner one might desire.*

I then first examined Nicanor Paulooff Stepnoff, a creole, 58 years old, and asked him as a first *question*:

Question 1. In what year did you see the sea-cow?

Answer. I do not remember the time exactly, but it was when Gutkoff* was the agent of the station.

* I am informed by Mr. Volokitin, that Gutkoff left the island in 1847, and that the so-called sea-cow was seen in 1846, the year before he himself (V.) arrived there. As already stated, I know Mr. Volokitin sufficiently to accept his statements as correct.

Question 2. At what part of the island did you see it?

Answer. At the "Nepropusk" (all places are so named where the high land ends so abruptly in the sea that passage on foot below, along the water's edge, is very difficult or altogether impossible, the one here in question being always passed below), between Tolstoj Mys and Komandor (the place where Bering died).

Question 3. At what time of the year?

Answer. Late in autumn; during the time of the fox-hunting, in October or November; snow had not fallen yet. [The season of the fox-trapping is from the first of October to the end of December.]

Question 4. How far were you from the animal?

Answer. About as far as from here down to the anemometer. [30 to 40 paces.]

Question 5. How was the weather? Was it high or low water?

Answer. The weather was fair. As the sea is deep there, I cannot tell whether it was high or low tide.

Question 6. How did it happen that you met the animal?

Answer. We were *en route* to Komandor from Tolstoj Mys, when the animal came across us at Nepropusk.

Question 7. For how long a time did you see the animal?

Answer. Only for a very short time; we saw it only as it rose for a moment, and it immediately dived again.

Question 8. Describe how it dived. Did it disappear completely under the water?

Answer. Yes, it did. [Describing its diving he illustrated it by a motion of his hand, distinctly imitating the manner in which the toothed whales move in the water. He added expressly, that "the animal showed the whole tail above the water when going down." Of course, I took the opportunity of asking]

Question 9. How was the tail fin shaped?

Answer. Exactly like that of a whale ("kit"), but rather small.

Question 10. Could you see the fore-legs?

Answer. No!

Question 11. Did you say, when you described how it dived, that it blew out a "fountain" (*fontanka*)?

Answer. Yes! When lifting the head up it spouted out water about as high as that: [Showing with the hand about four feet above the ground.]

Question 12. Whence did the jet rise, *i. e.*, from what part of the head?

Answer. From the top of the head, behind and above the eyes.

Question 13. Are you sure that it did not come from the nose or the mouth?

Answer. Quite sure.

Question 14. How as to the back fin?

Answer. It did not have any fin on the back.

Question 15. What was its color?

Answer. It was whitish [*bjele*, perhaps more correctly, light], about the same color as this table, [the table had a yellowish leather color; I now showed to him a scale of colors, and on this he, without hesitation, pointed out a quite light shade of "burnt umber," adding that the animal was], densely sprinkled with round blackish spots, which were about 6 inches long.

Question 16. How long do you estimate the animal to have been?

Answer. About as long as this room [14 feet], or perhaps six fathoms [about 18 feet]. It was so lean that we could see all the bones.

Question 17. What did it eat?

Answer. We did not see it eat; we only saw that it came up and went down three times.

Question 18. Does "*kapusta*" [sea-weed] occur at that place?

Answer. No; there is very deep water.

Question 19. Did the animal then swim away from you?

Answer. Yes; when it dived the third time, we saw the last of it. I would have shot at it, but it did not come to the surface again, although we were waiting for a long time. We even returned to Tolstoj in order to try to get sight of it again, but without result.

Question 20. Could you see far over the sea from the place where you were standing?

Answer. We could see over the sea both along the coast and out ahead as far as the eye could reach, but without seeing it any more.

I now placed before him the figure of the sea-cow accompanying Brandt's book, about which he made the remark that the nose was too blunt and short, it being on the animal seen by him protracted into a snout "similar to that on the skeleton of the sea-cow."

Postponing my remarks till I have finished the examination of both witnesses, I take the liberty to introduce the second one, Fedor Ivanoff Merschénin, Aleut, and 61 years of age.

As the very same questions were proposed to him, it will only be necessary to refer to their number. Besides, in the following account his answers are filled so as to be easily understood without direct comparison with the questions.

Answer 1. Does not remember the year—not even approximately. [Examining him more minutely, I gained the information that his son, who now is 36 years of age, at the time was quite a baby. It is here to be remarked that his statement was extremely uncertain, and that the age of the son, being taken from the census of the island, is subject to serious doubt.]

Answer 2. At the Nepropusk between Tolstoj Mys and Tschigatschiganakh [the Aleutian name of a small creek between Tolstoj and Komandor, sometimes called in Russian Nepropuski Reschka].

Answer 3. During the fox-trapping season, late in the year, probably a week before Christmas [old style; about Christmas, new style]. I remember very well that there was snow on the ground.

Answer 4. We were quite near the animal, only about as far as from here to the next house over there [about twenty to twenty-five paces].

Answer 5. It was a clear morning, with sunshine and a light wind.

Answer 6. The animal was there when we came to the place.

Answers 7 and 8. It was swimming to and fro, diving several times, wholly below the surface, absolutely in the same manner as a whale does. It was lying on its side for just one moment. Its movements when swimming and diving were very rapid.

Answer 9. As only the very extreme tip of the tail was visible, I am unable to say what shape it had.

Answer 10. Only one fore leg was seen when it was lying with its side up; it was short and rounded.

Answer 11. When coming to the surface it blew like a whale, spouting out water about 2 to 3 feet high, like a small "plavun" (*Ziphius*).

Answers 12 and 13. It did not lift the head out of the water, only the jet was visible. Nothing of the head could be seen.

Answer 14. The back had no fin.

Answer 15. [It is very remarkable that in describing the color he used the very same words as Stepnoff, and that on the color scale he pointed out the very same shade of color. The only difference was that he gave the color of the spots as dark brown; their form was rounded or somewhat oblong.]

Answer 16. As the animal could not be seen in its full length, it is difficult to estimate how long it was, but it may have been as much as 3 fathoms (about 18 feet).

[I told him that Stepnoff said that the animal was so lean that the single bones could be counted. At this he only laughed, thinking that impossible. Nevertheless, he himself had the impression that it was very lean, as he thought that he had seen the backbone protrude like a sharp ridge along the back.]

Answers 17 and 18. It did not eat *kapusta*, nor anything else, when we saw it.

Answer 19. Stepnoff would have shot it, but he waited in vain till it should appear again, as it was gone forever.

Finally, I asked him for his reasons why he considered this animal different from a small whale or a "plavun," to which he answered that the only thing he could think of was that it had no fin on the back like those.

Comparing these statements with those given by Nordenskjöld, the first idea will be that the accounts of the two men are very different in many essential points, while Nordenskjöld asserts that they agreed completely. It must, in this connection, be remarked that the statements of Merschénin were less precise than those of Stepnoff, his answers usually beginning with "I don't know." I, therefore, think it rather probable that his answers, if the words were put in his mouth, or if he heard Stepnoff give his evidence first, would have agreed with

those of the latter. On the other hand, those who know him best describe him as the more trustworthy of the two.

It will further be seen that only one of them had seen from what part of the head the water-spout was ejected, and that he said to me exactly the reverse of what is given in Nordenskjöld's work. The latter statement was translated for him, but he nevertheless insisted upon the correctness of his present account. The color is also given by Nordenskjöld as the reverse of what both told me, viz, as light with dark spots.

Nordenskjöld says further: "That the animal which they saw was actually a sea-cow is *clearly proved* both by the description of the animal's form and way of pasturing in the water, and by the account of the way in which it breathed, its color and leanness." The color and the way of its breathing have been considered above. The statements of both, as given by me, agree in that the animal only dived up and down, without pasturing or eating. And, as to the form, that it "was very thick before, but grew smaller behind." The description answers fully as well, or more so, to a whale as to the shape of the sea-cow, which Steller describes as having its greatest circumference round the middle of the body. The leanness itself is hardly a diagnostic mark, and we are justified in assuming that the extreme leanness of the sea-cow in the winter, as reported by Steller, first took place later towards the end of the season, as the result of the hardship undergone during the severe winter, and not at its beginning, as was the case in this instance. That the statement of the animal's appearance before Christmas is correct is evident from the fact that the fox-trapping ends the last day of December.

Finally, Professor Nordenskjöld says:

"As these natives had no knowledge of Steller's description of the animal, *it is impossible* that their statement could be false."

It is rather strange that Nordenskjöld forgets that a little earlier he had spoken of a man who, according to Nordenskjöld's own statement, in his early days had seen living sea-cows, and who died only seven years (in reality four years) before the conjectured last appearance. Such a scanty description as Nordenskjöld has reproduced could easily be made up from his stories and from tradition. But it is moreover a fact that those natives were not unacquainted with the earlier descriptions of the animal, as a copy of the plates accompanying Brandt's first "*Symbolæ Sirenologicæ*" were sent to the island as soon as published. The drawings were afterwards taken to Sitka.

In the meantime the statements of the two witnesses agree sufficiently to prove that the animal seen was not a sea-cow at all. The light color, as to which they agree so remarkably, the description of "the fountain," the movements when diving, and the total disappearance at last, are points especially conclusive. As to "the fountain," I lay no stress whatever on Stepnoff's statement that it originated from the top of the head. His description of the snout of the animal,

that it was protracted "as in the skeleton," shows perfectly where he has got his idea, and I believe, therefore, that Merschénin is right in saying that the head could not be seen at all, or only a very small part of it, but both of them describe the jet exactly as that of a whale, a likeness they both admitted and suggested. That the sea-cow, however, did not eject a regular spout in that manner is perfectly evident from Steller's mode of expression: "They lifted the nostrils out of the water, ejecting air and a little water with a noise similar to the snorting of a horse,"* a respiration *toto coelo* different from the graceful and characteristic spouting of the whales; but the fact that the animal could submerge itself totally, and that when diving it finally disappeared from the view of the men, is most conclusive. It is sufficiently evident from Steller's description that the *Rytina* was unable to dive†, even when wounded, in which case it only went out to sea, but never down to the bottom. It could keep its head under water for only about four or five minutes, when it was compelled to lift it above the surface to breathe. Had it been able to dive, it would have suffered less from the severity of the winter, especially the pressure of the ice, and it would not have been compelled to pasture in shallow water half walking, but could also have fed further out in the deep sea. That the animal, however, seen by the Bering Island natives dived like a whale, and disappeared in that manner, is beyond even the slightest shade of doubt. On this point their statements are absolutely conformable, unmistakable, and precise.

Nevertheless it may safely be assumed that those natives really saw an animal unknown to them. That they took it to be a sea-cow is perhaps less strange than that Nordenskjöld did so. It is therefore interesting to endeavor to find out what kind of animal it really was, for this purpose considering only those points, wherein both agree.

I think there can be but little doubt that the animal was a denticefe about 14 to 18 feet long, without a fin on the back, and light brownish white, with round or oblong dark spots. Upon looking into the literature, we will find that this description exactly fits the female narwhal (*Monodon monoceros*). I make the following extract from Professor Lilljeborg's description of this species:‡ "Fin on the back wanting; length of body reaching 15 to 20 feet; the female has on each side of the upper jaw, in front, a small tooth, usually not visible outside of the alveole; according to Scoresby the color of the adult is white or yellowish white

* "Nares exserebant atque aërem et pauxillum aquæ cum strepitu equorum ruspatione simili efflebant." In "The Description of the Bering Island," he says: "Je nach einiger Minuten erheben sie den Kopf aus dem Wasser, und schöpfen mit Räuspfern und Snarchen nach Art der Pferde frische Luft."

† "Half the body is *always* seen above the water," Steller, *Beschr. Ber. Ins. N. Nord. Beitr.* II, p. 294. That the *lamantin* or *manatee* is able to sink down to the bottom and rest there for a few minutes does not prove that the *Rytina* could do the same. Besides its movements, when descending, are by no means comparable with those of the diving whale.

‡ *Sveriges och Norges Rygggradsdj, Däggdj*, p. 996.

with large gray and blackish brown spots." Lilljeborg says further: "On the back, about in the middle of the body, is situated a longitudinal keel or ridge as a rudiment of the dorsal fin, rising above the back almost one inch through its whole length. The body is thickest at the beginning of this keel, tapering behind, and nearer to the tail strongly compressed, with a sharp edge above and below." This ridge is also very recognizable in the description of the natives, as also in Nordenskjöld's account, as the projecting "backbone" (the projecting crest of the *processus spinosi*), a feature forcing upon them the impression of great leanness.

I do not see any reason why the narwhal which occurs in the Arctic Ocean north of Bering Strait should not occasionally make its appearance as far south as Bering Island, as it is well known that on the Atlantic side it has sometimes visited the northwestern coast of Germany and the British waters.

It may thus be regarded as fairly proved that the unknown cetacean, which in 1846 was observed near the southern end of Bering Island, was a female narwhal. But, whatever it may have been, one thing is absolutely sure: *it was not a sea-cow!*

It will therefore appear that there is no reason for altering the year of the extermination, 1768, as already given by Sauer and accepted by v. Baer and Brandt, to a later date.

In the above investigation I have proceeded with great care and gone into rather protracted details, but I found it necessary to lay before the public the data in the case, to enable everybody to make up his own mind. I have had two reasons for so doing. The case itself is important and interesting. It would give rise to many conjectures and theories if it were taken for granted that a sea-cow could have roamed about invisible until 1854 (or 1846). But, besides this, I thought it most necessary to support my words by unquestionable proof in charging an authority like Professor Nordenskjöld with errors or mistakes. That he was not deceived intentionally by the natives,* I conclude, among other things, from the fact that the misunderstandings comprise other subjects besides the account of the sea-cow—thus, for instance, the color of the stone-fox and the number of fur-seals killed on Bering Island, as I have already shown. That a scientist of Nordenskjöld's well known thoroughness and merits could fall into those mistakes may, perhaps, be explained by the fact that in the hurry of the short stay at the island he was too impatient to wait for the often protracted and indefinite answers, therefore indicating what replies he expected or wanted, a hint most certain to be followed by the natives. Besides, his account seems to have been written down for the greater part from memory, the original notes having been either lost or insufficient.

SMITHSONIAN INSTITUTION, *January 1, 1884.*

* I regret very much that the words in my preliminary report (Contributions to the History of the Commander Islands, No. 1, Proc. U. S. Nat. Mus., VI, 1883, p. 84) can be misunderstood as if I thought the natives had deceived Nordenskjöld intentionally.



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