

I cannot close this paper without acknowledging the obligations under which I have been placed by several friends, and by some who were otherwise complete strangers to myself, in aiding the development of Nova Scotian meteorology, by valuable hint derived from their own experience in other countries, and by giving me access to useful instruments and books. Among the strangers to whom the Province is really thus indebted are our own corresponding members J. S. Hurdis, Esq., of Southampton, G. Murdoch, Esq., of St. John N. B., and Dr. Chas. Smallwood of Montreal. I have also to thank the proprietors of the *Express* newspaper who have for the past year most courteously thrown open their columns to my meteorological reports each month, actuated by their ever present desire to advance our native Nova Scotia. I have now only to hope that the efforts of this Institute to secure a meteorological observatory at this point may be crowned with success.

ART. X. THE WALRUS.* BY J. BERNARD GILPIN, A. B.,
M. D., M. R. C. S.

(Read May 10, 1869.)

Trichecus, rosmarus, (Gmel.)

I beg to lay before the Institute, a description of a Walrus, that was brought to Halifax in April of the present year. It was shot in March at the Straits of Belleisle, Labrador—dragged on the ice for five miles, and then taken by ship to St. John's, Newfoundland, and from thence fetched to Halifax.

Extreme length, 12 ft. 3 inches.

Length of head, muzzle to hind part, 1 ft. 5 inches.

Muzzle in breadth, 1 ft.

External tusk, length, 1 ft.

Tusks, inside mouth apart, 4 inches.

Outside mouth, apart at lips, 11 inches.

Eye from nose, 8 inches.

From eye to eye, 9½ inches.

* In the plate accompanying this paper I have drawn the Walrus to a scale of half inch to a foot, I have also shown the peculiar crescentic nostril with its inner fold and the fore flipper with its five scalloped edge and rudimentary nails far above this edge. To Mr. Roue I am indebted for the many opportunities of sketching the Walrus he gave me, and to Mr. Clark for the lithographic plate, the first connected with Nat. History ever issued I believe in the Province.

Skin in thickness, 1 inch.

Blubber in thickness, $1\frac{1}{2}$ inches.

Fore flippers in length, 2 ft.

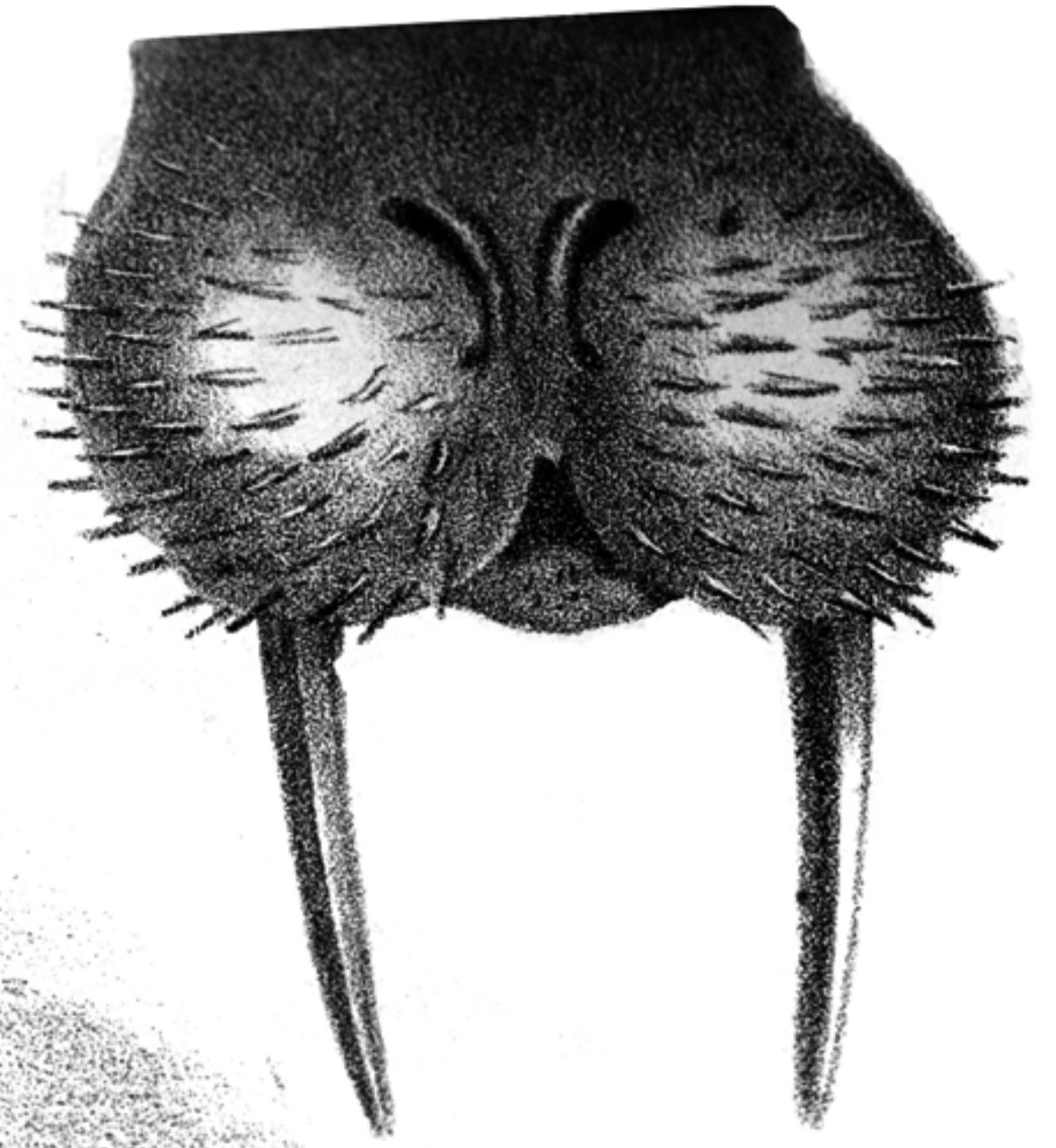
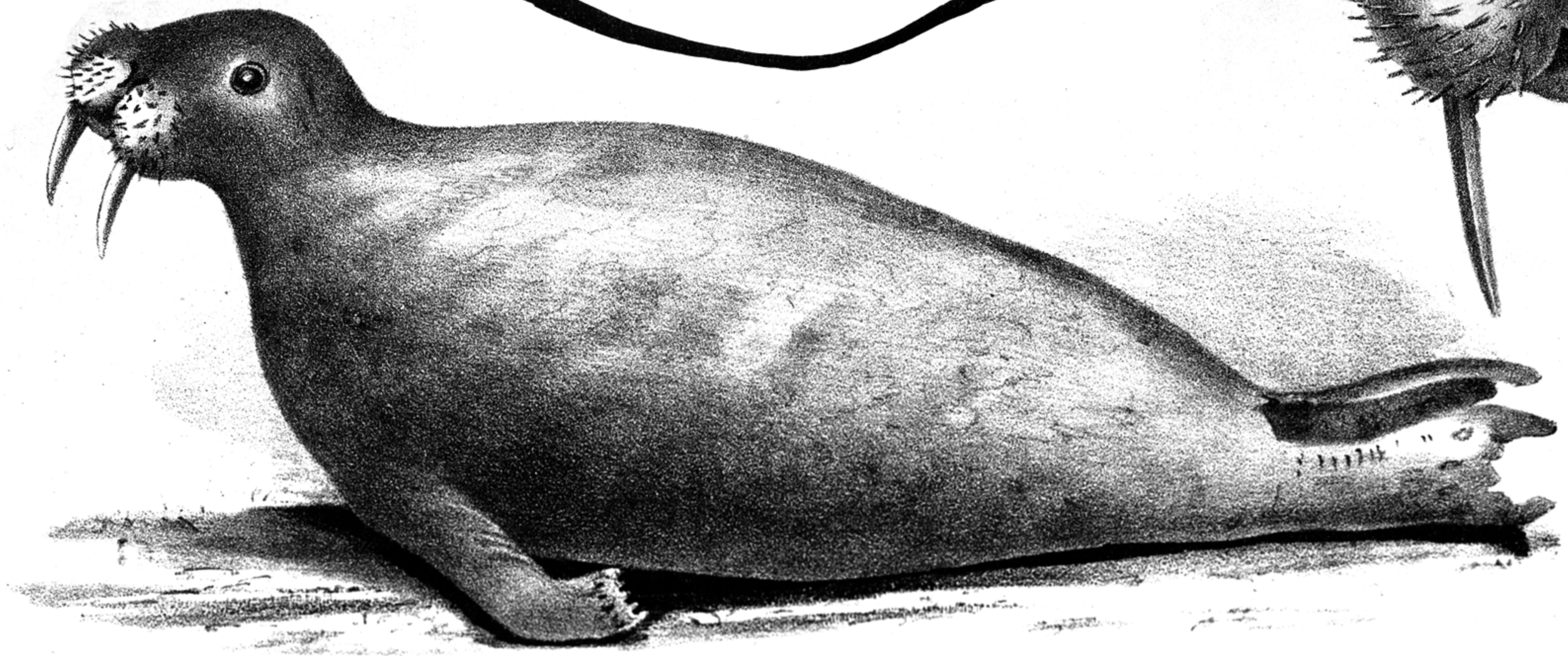
“ “ in breadth, 1 ft. 1 inch

Hind flippers in length, 1 ft. 10 inches.

“ “ in breadth, stretched, 2 ft. 6 inches.

Weight—said to be, 22 cwt.

In general appearance this animal had a comparatively small head, neck longer than a seal, with swelling breast and rounded ribs carried down about as far as in the ox. The body everywhere round, tapered away more rapidly below the ribs to the tail. It was covered by thin, and adpressed light yellowish green hair; when raised by a needle, one inch long, the surface of the entire skin was covered by scars, and bald warty patches, and lay especially about the neck and shoulders in welts and folds such as in old bulls, one often sees. The head was round and supported by a neck much longer than a seal, two tusks of hard sea ivory projected from the upper jaw, and diverged from four to eleven inches apart, at their extremities. Owing to the thickness of the upper jaws to receive the sockets of these tusks, and also to the thick upper lips from which the very peculiar moustache bristles protruded, the nostrils themselves were sunken below the surface. The nostrils were crescentic like two upright commas, with a peculiar crescentic fold inside of each, and between both, (which I suppose, acted as a valve in closing them under water.) The external ear was a small hole in a deep fold of skin. The bristles forming the moustache were very peculiar; they were two or three inches long, of the size of large straws but not tapering to a point, they were pellucid as amber, and of the same colour. I did not count them as evidently many had been rubbed off from friction in dragging on the ice, they had not that three-ply appearance noticed by Crantz and copied from him by future writers. Besides these peculiar bristles, there was a small curly moustache between the nostrils, and the lips were hairy, and inverted, carrying the hair a little way into the mouth. The eyes were imbedded in two fleshy prominences. From the animal having been dead for so long a time, I could not well make them out. They appear closed by lids though Crantz says they have no lids, and from the inner angle of the eye there was a third lid nearly an inch long, as it lay unextended. The



erke's lith, Halifax, N.S.

DRAWN 1/2 INCH TO 1 FT.

Dr Gilpin, Del.

two prominences of the eye together with the two swelling and rounded upper lips, gave the appearance of the face being formed by four round prominences, as one sees in all the pictures that have come down to us from the earliest describers. There were four molar teeth in both sides of either jaw, making with the tusks, eighteen in all. In the upper jaw the crowns are worn very flat, the facets looking inwards with a slight ridge on the two posterior. In the lower jaw the teeth were worn to a ridge with their facets looking also inwards. In the upper jaw of an old skull from Sable Island the teeth are worn into sharp points. It is impossible to generalize from these facts so few and so opposite, yet it would appear that the action of the jaws was a direct up and downwards crushing without lateral motion. Cuvier remarks that the young have a fifth molar and four incisor teeth in both jaws which soon fall out. It seems they had disappeared in both these instances. The fore flippers were two feet long, the palms naked, warty and calloused. When stretched out about thirteen inches wide with the outside edge the longest. There was no division into digits, but five very rudimentary nails, two or three inches from the extremity and five scallops in the outside web, revealed the skeleton of five distinct digits within. The hind flippers were very round and fat with no external appearance of heel as in certain seals. They were twenty-two inches long, had the same five rudimentary nails, and five scalloped edge. The outer and inner edges were the longest, and the sole was black, naked and warty. There was no appearance of tail, but when skinned it seemed about two or three inches long, the rectum appeared like a large hairy sack, the pairs being carried four or six inches up the gut. This is analogous to the hairy lip, which has already been described. The pœnis was of bone projecting from a large sheath, but so evidently imperfect from being worn in dragging upon the ice, that a description would be useless. The skin was one inch thick, lined by a blubber or layer of fat one inch and a half thick. Thus we find the Walrus much nearer allied to the Cetæ than the seals are. His simple teeth—some scarce surviving puberty, resemble the rootless fangs of the cachelot, and his tusks come nearer to the single horn of the narwhale than those of any mammal with four extremities; the teeth of the seals on the other hand strongly resembling the complicated organism of higher terres-

trial mammals. The extremities with rudimentary nails, far above the edge and not divided, approach the flappers of the cetæ which have no nails, and the edge simple, whereas in certain seals, the nails are perfect claws, extending below the edge, and the heel distinctly marked. The cetæ on the other hand, preserving the skeleton of five digits in their plain fore flippers, or fins, and in the flukes of their tail, carried in a plane at right angle with that of the body, instead of as in the true fishes, in one coincidental with it. The true fishes in the oblique setting on of their pectoral and ventral fins, retain almost the sole typical mark of their analogy with the highly organized four extremities mammals. It is pleasant also in studying one of our extinct provincial species thus brought bodily back before our own eyes, to where centuries past they roamed in thousands, to notice how accurate the older naturalists have been in their descriptions. Fabricius seems to have drawn his descriptions from life, and Crantz, though the specimen I have described differed from his in having eye lids, and in the moustachial bristles being plain, has evidently left the graphic description of an eye witness. Brooks, 1772, writing of its hair—calls it mouse color, in some reddish, in others grey, and in others scarce any hair at all, and about the joints full of lines and scratches. He speaks also of the semicircular nostrils, and the peculiar bristles, as thick as a straw, not, however, calling them three-plyed. He also mentions their eye lids, and pœnis of bone, Brooks must have taken from the life his excellent description of this half naked, patchy, wrinkled and scarred sea monster. The Walrus has long been extinct from our province. The latest accounts are those of Lord Shuldham, who I think will be identified with Vice Admiral Shuldham who served on the Halifax station, 1773—at that time they were numerous at the Magdalene Islands. At Miscou, Bay Chaleur, Perley found only their bones, but in such numbers, as to form artificial sea beaches. These were doubtless the victims of “The Royal Company of Miscou,” founded during the earlier part of the seventeenth century, by the King of France, and whose ephemeral city of New Rochelle, numbering at one time some thousands, has passed away leaving no sign. The murdered sea horses have left a more enduring monument than their murderers. Though we have no accounts later than the seventeenth and eighteenth centuries of their inhabiting Sable Island,

yet it is very probable that they continued to resort there until they entirely left these latitudes. Its difficulty of access, its being uninhabited, and its sandy bars fringed with a ceaseless surf, point it out as their last hold. Even yet a small representation of the great arctic sea herds yearly visit this Island. Sometimes in January, but more often in February, a herd of several hundred large seals make their appearance upon the N. East bar; if molested they re-appear upon the S. W. bar, where they remain if undisturbed the whole summer, they and their little ones—for they usually whelp in early spring. They are called characteristically enough, by the patrolmen ocean bulls, but I fancy are either *P. barbata*, or *H. gryphus*, or perhaps both, as Dr. Gill has certainly identified the great grey seal on Sable Island. I saw them there in June of 1854, but had none of them in hand. By galloping down upon their line of retreat, I was enabled to close upon them as they shouldered or hummocked themselves into the sea. The bristly moustache of the old ones, and the white and spotted coats of the pups, very much resembled the plates of *P. barbata*, whilst their size at once separated them from the common seal *P. bitulina* which constantly inhabit the island. This last deputation from the north, will doubtless, like the Walrus, and the great auk be pushed back by man to the frozen circle. It would be curious to trace what effect this deprivation of genial heat and high temperature, especially in the young must produce in the reproductiveness, the habits, and power of sustaining life or vigour in after life. If all created things wage a battle of life, it must be confessed that its tide has turned against these poor sea horses. Restricted to the high latitudes, deprived of the great enjoyment of basking, lying, and resting on the sun-heated sands, in latitude 44° N., (an enjoyment only comprehended by those who have witnessed it), they are pushed back to the ice floe, and damp fogs of the arctic circle. The food that fed their progenitors is strange to them. Are their numbers less? Are they of less dimensions? Is their layer of blubber thicker in the greater cold? Are they like their old companion, the great auk destined to become extinct of modern man? Who can answer?