

ART. VII.—ON THE SEALS OF NOVA SCOTIA. BY J. BERNARD
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(Read March 9, 1874.)

FAMILY PHOCIDÆ.

Calocephalus vitulinus. F. Cuvier. Gray.

Phoca vitulina. Linn. Gill.

Phoca concolor. Dekay.

COMMON SEAL. HARBOR SEAL.

Pagophilus Groenlandicus. Gray.

Phoca Groenlandica. F. Cuvier.

SADDLE BACK. HARP SEAL.

Halichærus grypus. Gray. Nilsson. Gill.

Halichærus gryphus. Bell.

Phoca grypus. O. Fab.

GREY SEAL.

Cystophora cristata. Gray. Nilsson.

Phoca cristata. F. Cuvier. Dekay.

HOOD SEAL.

Of these four species, two may be called residents of Nova Scotia, the Harbor Seal, and the Grey Seal. The others are only chance visitors, or are brought down the Straits of Bellisle on the ice, by the Arctic current to the northern shores of Cape Breton, in early spring. Another species not uncommon to Newfoundland, called Square Flipper by the fishermen, may also reach us; I never have had an opportunity of identifying them, but suppose them to be the *Phoca barbata* of Gray's list, B. Museum.

Calocephalus vitulinus.

THE COMMON OR HARBOR SEAL

A skull of this species from Sable Island lies before me. It measures eight and one half inches in length. The teeth are, upper jaw three incisors one canine and five molars; the first are very small. On the lower, two incisors one canine and five molars. The upper teeth are much worn, but on the lower jaw the beautiful lobed structure, so well described by Bell and Nilsson, is well exhibited—the large lobe in the centre, one small one in front, and two behind. These together with the peculiar structure of the nasal bones, the outer edge prolonged beyond the inner, the deep notch in the palatine bone, the palatine foramina in the maxillar bone and the oblique position in the jaw of the molars themselves, so exactly resembling the seal of the European seas, leave no doubt of their identity. Thus the habitat of this seal is from New England to Greenland—to Iceland coming down to the British and French seas, and extending, according to Pallas, to the Caspian and Lake Buikal. Though Godman described this seal as *P. vitulinus*, and DeKay coming after, called it *P. concolor*, apparently with no other reason than the prevailing feeling amongst American naturalists of non-identity of old and new world species, yet we owe to Dr. Gill, Smithsonian Institute, in a paper published about a year ago, to have exactly determined the fact, which he did by comparison of skulls sent him from Sable Island. I regret I have no exact notes of its outward appearance. Many measure six feet, though five feet is the more ordinary length. The head is roundish and face whitish, with a dark spot above the eye, from which, three or four bristles spring, the fore flippers have five well developed fingers connected with webs, and armed with five claws of dark horn color. The hind flippers have also five fingers webbed, with five claws smaller than the fore. In the fore, the middle is the longest; in the hind, the two outside are the longest. The wrist is much more developed from the integuments than in other seals. The eye is very large and flat. There is an external orifice in the ear but well covered by the fur. The nostrils are linear with a deep line between them, and the lips are tumid and ornamented

by numerous bristles. The color of the live animal wet, as he habitually is, with the fur plastered down smoothly to his figure, is a slaty ground, deeper upon back and lighter upon belly, on which are more or less penciling of black, sometimes spots, sometimes running into lines, usually a complication of both. When dry, the fur becomes more erect, and the light slate becomes greyish fawn. When you examine the dead skin at the fur dealers, you find a pale sea green pervading the whole skin with the dark pencelling on it and the hair erect and dry. A seal coming out of the water to bask in the sun, is nearly black, but as he dries he gets lighter and lighter until he is almost fawn. I could tell by his appearance, almost, how long he had been out of water.

A young whelp apparently a week or ten days old was dark slate upon the back, lighter on sides and belly, with about a dozen round black spots on his sides. The face in the adult is lighter and the flippers darker than the body. This seal is common to every port of Nova Scotia. I have seen them in the Annapolis Basin and the Bay of Fundy. They are found at Yarmouth and along the eastern coast, and a few every winter pass the crowded wharves of Halifax, and are seen in groups on the ice at Bedford Basin, or riding to sea on its fragments as the ice is swept seaward by a heavy north-wester in early spring. But vigilant and shy, it loves lone unfrequented shores, and thus Sable Island is its great stronghold. Here, at least, some thousands perpetually dwell, and some years ago I watched their habits with great pleasure. On the north side of the island you only met with single ones or pairs roaming inside the bars about five hundred yards from shore, whilst on the south side, exposed to the whole swell of the Atlantic, we found them in herds. I supposed their food was plentier on that side. They would follow me on horse back for miles, the whole herd accompanying me just outside the breakers, with their heads turned towards me. Sometimes their curiosity tempted them inside the breaker, when they always dove to escape the foamy dash. It was a pretty sight as the sharp edge of the wave curled up and thinned out before it broke, to see three or four of them through the transparent water, as it lifted them above the sea level and showed them struggling to avoid its creamy dash. But though so much at home on the sea,

they all love to bask upon the warm sands. They were very fond of the placid waters of the inland lake, and taking advantage of an opening from the sea forced in by the late heavy weather, hundreds of them would be sporting on its shallow waters or lying in scores on its yellow beaches. They looked at a distance like stony reefs, so motionless was their rest. At dawn of the early May mornings we found the new born whelps, born of the night, lying on the shores. They were very dark, very velvety, about two feet long, with most lustrous eyes deeply steeped in sleep. These little sea babes snapped and snarled and made every hummocky exertion to escape seaward, the mother meanwhile swimming in restless circles a half gun-shot from shore. Being placed in the water for the first time no doubt, it instinctively flattened itself, dived and reappeared upon its mother's back, who soon carried it far from our baneful presence. We must have broken in upon her nursery laws, as the whelps generally do not take the sea till twenty days old, and then very cautiously, trying the shallow pools first. About the middle of July these whelps had grown to four feet in length, (they measured to my breast) and weighed about sixty pounds. They were constantly on shore and seemed to require a great deal of sleep. They slept constantly upon their backs and very sound, whilst the old ones slept upon their bellies, their head slightly turned upwards. As their hind flippers were also turned up, this gave them the appearance of beached canoes at a distance. In all the representations of seals I have never seen this attitude depicted. I could always approach a young one, but the old, ever vigilant, went off in their hummocky gallop, using certainly their fore flippers, but more the abdominal muscles, at such a slapping pace that a smart gallop brought me to the land wash with the whole herd struggling in the creamy breaker, that now twisting my poney's legs from under her, was warning me to pull her out. They usually accompanied me after this for three or four miles, keeping even with me just outside the breaker as I rode along the solitary beach. The whelps at the end of July, being worth from two to three dollars for their skins and oil, are mercilessly run upon and clubbed. We shot many from the shore and our boats. A seal rising his head above water keeps his eye intently on you, presently he turns to dive,

throwing the round arched up back of his neck towards you. This is your mark, if you put your charge of seal shot well in here, a large circle of blood and oil instantaneously spreads itself on the water. In the centre, bobs up and down the tip of its nose, shot dead but slowly settling to the bottom. A young seal of this species, taken in Halifax Harbor in May, and probably three or four days old, was about two feet long and dark blue on back, slaty blue sides and belly with a dozen or more black spots beneath. It easily turned itself round by its fore flippers, but used its stomach muscles in going ahead, the hind flippers were trailed behind as if useless. The nose was blunt with a deep sulcus between linear nostrils, cheeks tined and ornamented by bristles.

Pagophilas Groenlandicus.

THE HARP.

I insert this seal on the Nova Scotia list not upon my own personal knowledge, but very common in Newfoundland and Labrador. The arctic current dividing north of the Straits of Bellisle, sweeps down the ice by the western shore of Newfoundland, and thus packs the northern shores of Cape Breton. In the Spring of 1874, this ice was filled with seals, seen and taken readily from the shore, which I presume to have been both Harps and Hoods. The Harps of Newfoundland are identical with those of Greenland, the North Sea and Shetland Isles. The whelps are often brought to Halifax by the sealers, but usually all die. In studying one belonging to Mr. Downs, I observed that he constantly swam when under water upon his back, coming thus to the surface and turning over to dive again.

Halichærus grypus.

GREY SEAL.

When on Sable Island I noticed a large seal that frequented the bars in herds of twenty or thirty. They kept by themselves, were very vigilant, came in December, whelped in February or March, and stayed about the Island till August. There were none killed,

and the only observations I could make were that the large ones or males had fine bristly tined cheeks; the young were white, not yellow, and that they were generally double the weight of the common seal. The old males winded me before I came in sight over the sand dunes, and a rapid gallop brought us altogether in the foaming land wash. Deep trails were worn in the sand, from the wide sand-baths they were luxuriating in, down to the wet tide wash. The men told me the whelps changed their coats a few days after birth, and before they took the water. In a paper published about two years ago by Dr. Gill, Smithsonian Institute, he identifies this seal with the great grey seal of the Scottish and Irish coasts, so well described by Bell and Nilsson, who first separated it from the common seal. His observations were made upon the skulls and skins sent him by Edward Dodd, Esq., late Superintendent of the Island.

Cystophora cristata.

HOOD SEAL.

In May, 1874, an old female hood seal was taken on a bultow line in one hundred fathoms water, Sambro banks, about twenty miles from the Nova Scotia shore. It was brought into Halifax harbor where I saw it. It measured,

Nose to end of tail.....	7 feet 3 inches.
To end of flippers.....	7 feet 6 inches.
Tip of nose to eye.....	6 inches.
Tip of nose to fore flipper.....	2 feet 3 inches.
Length of fore flippers.....	10 inches.
Length of hand flipper.....	1 ft. 1 inch.
Length of tail.....	8 inches.
Diameter of eye.....	2 inches.
Mustasche bristle.....	2½ inches.

In general appearance this seal was very round but tapering off suddenly to the tail. The head seemed small, neck long, but all swelling lines marking head from neck, as seen in most drawings, were obliterated in fat. There was no mark of a hood upon the forehead, except a protuberance of the nasal cartilage, causing a slight prominence of the profile. The eye was large and flat,

with a nyctitating membrane from the inner corner. I could easily pull the upper lid over the eye, though Dekay says of his specimen it had none. Close behind the eye, was an orifice for the ear well covered with hair which ran down its interior. A finger might easily have been put into it, but less than an inch from the surface it would be stopped by a membranous valve like tragus. The muzzle blunt and hairy, slightly tined, was ornamented by rows of thick brownish bristles. Three bristles of the same kind were above the eye. These bristles were wavy, from slight prominences or thickening alternately on either side. The nostrils were perpendicular, parallel or scarcely converging below. The fore flipper was two feet three inches from end of nose, very small, (ten inches long) scarcely showing the carpus from beyond the integuments, and divided into five distant toes with webs between. The toes were all armed with sharp nails or claws, the longest, one inch and a quarter long, pearly white and very sharp, and just reaching beyond the fur. The first toe is the longest, and they gradually shorten to the fifth. The fur is longer upon the flippers than on the body, yet it looks very small comparing it with the rise of the body. The hind flipper is fourteen inches long, containing five toes connected by webs, each toe has a small pearly white rudimentary nail and the two outside toes the longest, the middle shortest, and the webs when stretched out a darker color than the fingers. The tail was about eight inches long and dropped between the hind flippers. There were four abdominal mammæ hid in the fur and about five inches apart in two rows. As regards color, when wet the head fore and hind flippers are black. The back and sides have irregular black patches running into each other on a greyish blue ground. The neck has a checquered look from the spots being smaller and the belly a lighter hue, from there being fewer of them. When dry this greyish ash becomes pale fawn, that is in life, the seal basking in the sun. The dead skin seen at the fur dealers has a greenish hue added. In life the whole surface has a smooth plastered look which in the dead skin becomes rough and uneven. Nearly all the colored drawings of seals represent them in life but colored after the stuffed specimen or dead skin at the dealers, and hence has arisen the confusion of color and the

apparent diversity in the accounts of Naturalists. The skull measured nine and one half inches in length, and six and a quarter in width. The bones very massive and muscular ridges large. The palatine foramina came out at the junction of the maxilla and palate bones, and a shallow canal passed forward from them. Edge of palate transverse with no notch. The intermaxilla bones were very large and the nasal cartilage greatly developed at the muzzle. The teeth were, upper jaw two incisors, one canine and five molars; the lower jaw the same except only one incisor. The crowns of the molars were much worn, but the cutting edge maintained a lobular form, and the outside of the enamel had the fine ocination described by previous authors. The molars were widely separated from each other, as were indeed all the teeth, though in a less degree. This skull compared exactly with the figure in Gray's "Catalogue, Seals B. Museum."

This seal is only a rare visitor to our shores. As I have before said the common or harbor seal and the great grey seal are our only residents. But as the Walrus, now a much more arctic species was once common here, there can be little doubt that all the North-eastern American species once dwelt on our shores. The early French writers as well as the English traders to New England, can scarce find words to express the teeming life of seals, dolphins, porpoise and whales which fed upon the migratory fish that literally thickened the seas around. They have all passed away. The fish have nearly followed them, leaving as problems how an arctic climate and loss of genial heat, may have modified their former somewhat equatorial habits and forms, as some moderns assert the whales which once sported in our sun-warmed shallow waters, dare not now pass the warm Gulph Stream. I have followed the classification of Gray B. Museum, giving the synonymes of American authors.