

ACCIDENTAL OCCURRENCE OF THE PYGMY SPERM WHALE (*Kogia breviceps*) ON THE COAST OF NOVA SCOTIA: AN EXTENSION OF ITS KNOWN RANGE; WITH REMARKS ON THE PROBABILITY OF THE FORMER PRESENCE IN THESE WATERS OF THE TRUE SPERM WHALE (*Physeter macrocephalus*).—BY HARRY PIERS, Curator of the Provincial Museum, Halifax, N. S.

(Read 9 February, 1920.)

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Any information regarding the rarer Cetaceans of Nova Scotia is of value, as we have little positive data regarding their occurrence here. This more particularly applies to the True Whales (*Balaenidae*) and the Sperm Whales (*Physeteridae*). Our Dolphins (*Delphinidae*) are somewhat better known, but they also deserve attention. Whenever possible, advantage should be taken of any opportunity to examine and definitely determine the specific name of specimens stranded or otherwise taken on our coast.

PYGMY SPERM WHALE (*K. breviceps*).

Specimen taken at Herring Cove, Halifax County, N. S.—On 17th January, 1920, when Jeremiah Gray and other men were cutting out ice to prevent it carrying away the wharves, in case of storm, in Herring Cove (west long. 63° 33', north lat. 44° 34'), a small inlet on the western side of the outer part of Halifax Harbour, Halifax County, Nova Scotia, they chanced to come upon the body of a small-sized whale. The animal was eight and a half feet long, and it was lying dead just beneath the ice. The spot where it was found was about one hundred yards from the head of the narrow cove, and about twenty yards from the western shore,

and the depth of water there is ten feet at low tide. The species had never before been seen by any of the many fishermen and other sea-going men of the locality.

The winter of 1919-20 had been a most abnormally cold one, with the temperature about zero (Fah.) for quite long periods, and cold weather had set in very early in the season, about the middle of December. Herring Cove had frozen on 12th January, and the ice, which was five inches thick, extended from the head of the inlet, nearly down to the government wharf which is on the western shore three hundred yards from the head. No doubt the whale on coming into the small inlet, had got under the ice, and not happening to retrace its way, had drowned beneath the strong covering, as it was unable to reach the surface to breathe. The black skin was abraded off the top of the head, doubtless from the frantic efforts of the suffocating animal to force its way through the ice.

A newspaper reference to the capture of the whale caused me to telephone for the head, fins and flukes to be sent to the Provincial Museum, where they arrived on 22nd January. On examination of these essential parts, I was much surprised to find that the species was the Pygmy Sperm Whale (*Kogia breviceps*, Blainville), a nearly adult female, belonging to the family *Physeteridae* and related to the huge Sperm Whale or Cachalot (*Physeter macrocephalus*, Linn.) from which it differs distinctly, apart from the great inequality in size. An adult Pygmy Sperm Whale grows to a length of only fifteen feet or so, while a male true Sperm Whale may be nearly seventy feet in length. After making careful drawings and measurements, the flesh was removed from the head; and the skull, dorsal and left pectoral fins, and the flukes were preserved (Museum Accession No. 4829).

Specimens taken on the United States coast.—The Pygmy Sperm Whale, which is generally a rare species, has never before been reported from Canadian waters, and previous to 1904 there was no reference to its occurrence on the adjoining New England coast from Maine south to Connecticut (*vide* Glover M. Allen's List of Mammalia: Fauna of New England; Occas. Papers Bost. Soc. Nat. Hist., vol. 7, Bost., 1904; and F. B. Sumner's Catalogue of Marine Fauna of Woods Hole and Vicinity, Bull. U. S. Bur. of Fisheries, vol. 31, Wash., 1913). Since 1904 it has been twice taken in Massachusetts waters, and a life-size cast and the skeleton of one of these are in the museum of the Boston Society

of Natural History (*vide* letter of G. M. Allen, 30 Jan., 1920.) That is the most northern range on this coast hitherto known. Gerrit S. Miller did not include it in his Preliminary List of New York Mammals (Bull. N. Y. State Mus., 6, no. 29, Albany, 1899), but a large female, containing a foetus, was stranded at Long Beach, Long Island, N. Y., on 28th February 1914, and the skeleton is now in the American Museum of Natural History, New York, (*vide* Bull. Am. Mus. Nat. Hist., 38, pp. 7-72, N. Y., 1918), and a second specimen was taken at South Beach, Staten Island, N. Y., on 1 March 1920 and is now in the same museum (*vide* letter of F. A. Lucas). It has been taken several times on the coast of New Jersey, viz., (a) female, 8½ ft. long, containing a foetus, collected at the Life Saving Station, Spring Lake, lat. 40° 10', on 27th April, 1883, now in U. S. National Museum, acc. 13060, (type of *Kogia goodei* True)*; (b) adult female, 10ft. 6 in. long, collected at Barnegat City, 24th Oct. 1885, now in U. S. National Museum, acc. 16706; and (c) young male, collected at Loveladies, 25th Oct. 1885, now in U. S. National Museum, acc. 16705. In Virginia, a male was washed up on the beach during a storm at Dam Neck Mills, south of Virginia Beach, in Feb., 1887 (U. S. Nat. Museum, acc. 22559); and in North Carolina, a male, 7 ft. 10 in. long, was taken at Kitty Hawk, 5th Jan. 1885 (U. S. Nat. Museum, acc. 15560).† It is not commonly found about the West Indies.

Range.—Its general range is in tropical regions, and its occurrence beyond is more or less accidental. True (1885) gives the geographic habitat as "temperate and tropical seas". Lydekker (Guide to Whales, Porpoises and Dolphins in Brit. Museum, p. 26, Lond., 1909) says it is very widely distributed, having been met with in the Indian and Southern Oceans, and in the North Pacific, but it does not occur in British waters. It is apparently more common in the southern hemisphere; it or very closely related forms having been taken a number of times in the New Zealand seas, and also once on the coast of California. Some of these specimens have been described as different species, but G. M. Allen thinks that probably they should all be included under

*This specimen is figured by True, Rept. U. S. Fish Com. for 1883, pl. 8, fig. 22, Wash., 1885.

†I am indebted to W. deC. Ravenal and Wm. Palmer, of the U. S. National Museum, Wash., for particulars regarding the specimens taken on the coasts of New Jersey, Virginia, and North Carolina.

breviceps. F. E. Beddard (Mammalia, p. 367, Camb. Nat. History, Lond., 1902) allows two species, if the accounts of their osteology are to be depended upon, namely *Kogia breviceps* and *Kogia (Callignathus) simus*, the latter from the coast of India. The former is said to have 13 pairs of ribs, no teeth in upper jaw and 14 or 15 in each ramus of lower jaw; and the latter, 14 pairs of ribs, 2 teeth in upper jaw and 9 in each ramus of lower jaw. *K. floweri*, a Californian form, whose teeth are particularly long and recurved, and *K. pottsi* from New Zealand, have been described as distinct forms, but further investigation will probably indicate that they are merely varietal forms of *K. breviceps*.

We thus see that the accidental occurrence of *Kogia breviceps* in north latitude $44^{\circ} 34'$, close to Halifax, Nova Scotia, is remarkable and worthy of note, because it considerably extends the range and also adds another mammal to the casual members of our marine fauna.

How the present individual came on our coast.—To account for its occurrence here, we must surmise that it had come from tropical regions, to the southern coast of the United States or the vicinity of the West Indies, and thence northward in the warm waters of the Gulf Stream, and straying westward out of that current, had come by chance to our cold shore in the middle of an unusually severe winter, there to die, not directly as a result of the low temperature of the water, but because of the ice which gave it no opportunity to come to the surface to breathe. That it coasted up along the shore of the United States, is a less probable hypothesis. The number of female specimens containing fetuses which have been taken in northern waters, suggests the possibility that their unusual visits are in some way associated with the breeding season.

Description.—As the species is seldom met with, a description of the present specimen will be of some interest. The accompanying plate illustrates the external characters of the entire animal, and also depicts all aspects of the cranium, which latter is complete in all its parts. These drawings have been made with considerable care, so as to be accurate in all particulars, especially as regards the skull. Gray, in his Catalogue of Seals and Whales in the British Museum, second edition, Lond., 1866, p. 216, gives figures of the dorsal and lateral views of a skull and a lateral view of a lower jaw, reproduced from those of M. de Blainville of 1838, and these figures have generally been

copied as depicting the cranial characters of this species. De Blainville's drawing, made from a single skull from Cape of Good Hope, in the Paris Museum, was not a perfect one, as the original lacked some rather important parts, particularly about the maxillary notches, and the details of the parts present are not very well represented. The ear-bones (periotic and tympanic bones) were without doubt missing in de Blainville's specimen, as is very often the case with cetacean skulls; and these extremely interesting and important bones have never, I believe, before been figured, and they are difficult to describe without drawings. Both the right and left ear-bones are complete in our specimen and the left one is figured, in opposite side-views, on my plate, on a scale very slightly less than one-third natural size. (See plate, page 101.)

Diagnosis.—The species may be readily recognized by its protruding snout, bluntish head which is not truncate, the toothless upper jaw, and toothed lower jaw having about fourteen sharp teeth on each side, blowhole on the top of the head, and the presence of a dorsal fin. The skull may be known by its unsymmetrical and concave dorsal region, and the dental characters referred to.

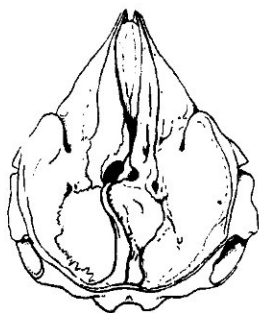
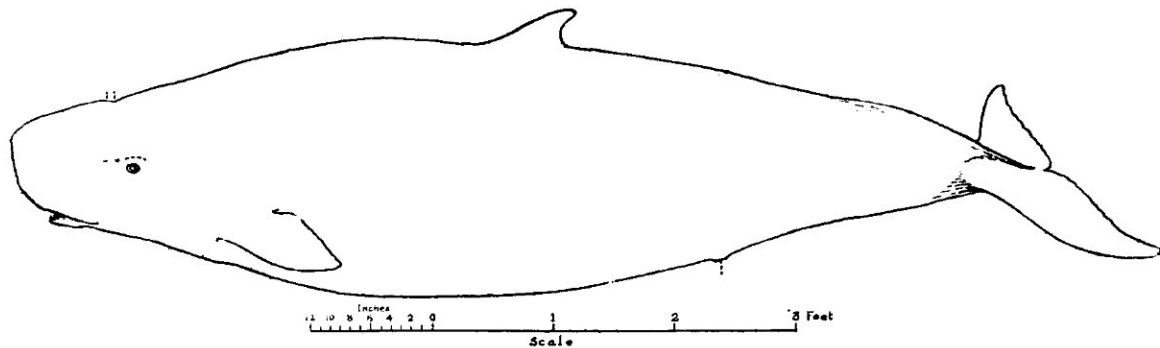
External characters.—Head contained six times in total length. Snout projecting beyond the mouth; the face only very slightly flattened below extremity of snout. Eye much above angle of mouth. Blowhole on top of head and very slightly to left side; shape crescentic. Lower jaws very narrow in front; no teeth in upper jaw; fourteen on each side of lower jaw. Dorsal fin present, small and low, falcate. Pectorals rather small, pointed. Peduncle of tail strongly keeled above and below.

Viewed dorsally, the snout is moderately sharp; viewed laterally, the front of the head is blunt, the mouth projecting 3 inches beyond a vertical line from the anterior end of the mouth. Mouth very narrow, capable of being opened to an angle of about 70°; tongue short, its extremity only coming to 3 ins. of end of mandible; transverse diameter of throat, 2.15 ins. Eye set rather high, about midway between dorsal and ventral lines, and slightly posterior to the posterior end of mouth opening. The single external orifice of the blowhole is on the upper part of the head (not anteriorly as in *Physeter*), and it is somewhat crescentic, with the convexity to the front, and its transverse length is 2.45

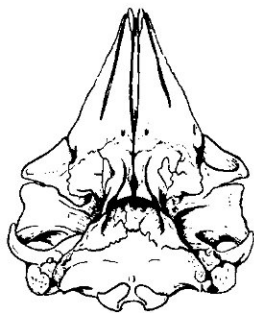
ins. It is situated not quite on the medial dorsal line, the centre being .52 inch to the left of that line. It is closed, in a valve-like manner, by the posterior wall coming in contact with the anterior wall, so as to exclude water; and surrounding it is a white, very tough, muscular or cartilaginous fibre. The outer vestibule of the blowhole is of the length of the external opening, and is 1.75 ins. deep. It is coloured black within. From the left end of this vestibule is a small tubular passage (spiracle) penetrating nearly perpendicularly into the head, to the left superior naris, which could be explored with a probe to a depth of 5.50 ins. from the surface of the head. A right-hand passage could not be located with the probe, but the man who removed the flesh said he found also a right-hand smaller opening leading into the head, and connecting with the right-hand superior naris. Although I searched for the small external ear-opening, I was not quite sure I had located it, but the position of the well-developed ear-bones (tympano-periotic bones) of the skull, shows that the external orifice must be about 2.50 ins. behind and a little below the level of the eye, where I had detected a minute pore or opening.

Dorsal fin composed of adipose tissue, without any osseous connection with the vertebrae; low, falcate; its basal length contained about 13 times in length of animal, its height about $2\frac{1}{4}$ times in its basal length. Pectoral fins short, moderately broad, and somewhat pointed; their anterior margin a little less than $\frac{1}{8}$ th as long as length of animal, their greatest breadth contained $2\frac{1}{2}$ times in their greatest length. Flukes moderately excavated on the hind margin, and with a small acute notch in the centre of that margin; the distance from tip to tip, 1.84 times the greatest length of the pectoral.

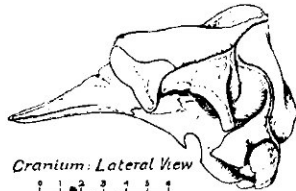
The weight of the animal was reported to have been about 400 pounds. The "blubber" or fatty tissue was concentrated on the outside of the animal, immediately beneath the skin, and at the back of the neck it formed a layer 1.40 ins. thick, white in colour and it readily furnished a clear yellowish oil of high quality. The flesh was of a very dark red colour, entirely free from fat; and on being eaten after frying, was exceedingly tender, but in my opinion was somewhat too strong in flavour to be very palatable, although two gentlemen who also tried it considered it excellent. It has no oily or fishy flavour; but does not possess the very fine edible qualities of a steak from the back of the Harbour Porpoise



Cranium: Dorsal View

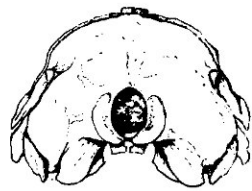


Cranium: Ventral View



Cranium: Lateral View

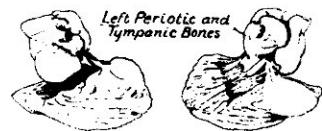
Cranium Scale of Inches



Cranium: Posterior View



Mandible: Lateral View



Left Periotic and Tympanic Bones

H. Piers del.

PYGMY SPERM WHALE, *Kogia breviceps* (Blainville),
 Female; 8 ft. 6 ins. long. Taken at Herring Cove, near Halifax, N.S., Nova Scotia; 17 Jan., 1920.

(*P. communis*), which is particularly savoury, resembling somewhat a very tender moosesteak.

Colour.—Upper parts and sides, including interior of blowhole, outside of pectoral and upper side of flukes, black. Underparts whitish or greyish white. Inside of mouth pink; teeth white.

Skull.—As crania of the Pygmy Sperm Whale are seldom met with in collections, particularly in America, a rather full description of that part of the animal will probably be of interest. The skull of *Kogia* and that of the allied *Physeter* are thought to be perhaps the most modified from the ordinary type of cranium in the whole mammalian class. The skull of the present specimen is short, broad, and with the exception of the mandible, massive; and crests are strongly developed. The rostrum, from in front of the maxillary notches, forms about an equilateral triangle, the lateral margins being somewhat concave anteriorly and slightly convex posteriorly. The length of rostrum to a line drawn between the bases of the deep maxillary notches, is contained in the total length of skull, 1.91 times (52.3 per cent.). The greatest breadth of the skull (post-orbitally) is contained in the total length, 1.23 times (81.6 per cent.).

Viewed dorsally the skull is very strongly asymmetrical along the median posterior region, whereas the lateral outlines are symmetrical. The lack of symmetry is chiefly noticeable in (a) the median crest, (b) the intermaxillae, and (c) the nares. We find the prominent median crest strongly twisted to the left as it proceeds from the vertex anteriorly until it reaches the nares; the left intermaxilla anteriorly is widened, and the right one narrowed, whereas posteriorly the right one is widened and passes back to the vertex and the left one is short. The left naris is very much the larger one, its diameter being about $3\frac{1}{3}$ rd times that of the right one; and although the septum is mesially situated, the disproportion between the magnitude of the two openings give the nares the appearance of being towards the left side. A prominent horse-shoe shaped crest proceeds from one maxillary notch, around to the vertex, and thence to the other notch.

Examined more minutely, the two intermaxillae show great lack of symmetry, more particularly in the posterior parts. Both widen posteriorly, but in different degrees, and the right one is much the longer. The right one is anteriorly the narrower, but from the small right naris backward it is considerably widened,

is twisted, and joins the median crest on its lefthand edge, and extends to within a short distance of the supraoccipital-frontal crest. The left premaxilla is wider than the right one before the nares, and seemingly terminates at the posterior margin of the large left naris, but the suture is somewhat difficult to discern.

The maxillae are narrow anteriorly, but widen and thicken greatly at the maxillary notch, which latter is narrow but penetrates very deeply (4.3 cm. deep). Transversely the maxillae begin to be strongly concave here. Just posterior to the notches, the maxillae are very greatly thickened, and thence rise in a strongly elevated lateral crest which passes in a curve, as before mentioned, back to where they and the supraoccipital form a sharp, curved transverse crest near the vertex. This curved crest thus forms a "horse-shoe" enclosing a concave basin, in which formerly was situated the loose connective tissue containing the supply of spermaceti. Another very prominent crest arises at the vertex (where it joins the transverse crest) and passes forward, being twisted to the left, S-wise, and finally is lost at the posterior margin of the large left naris. Whether this crest is formed by the right margin of the left maxilla, or by it in conjunction with the left nasal, I am unable to say with certainty, as only the median suture between the maxillae can be traced. At any rate, the nasals are difficult to precisely locate, unless the sutures should subsequently open up.

The frontal is entirely covered by the maxillae posteriorly; but the supraorbital process of the frontal is massive and well developed. The body of the malar is massive, and has a strong postero-inferior process, just anterior to the orbit. The zygomatic process of the squamosal is prominent, but shows no unusual thickening. The greatest breadth of the skull is in this region. The supraoccipital bone rises almost vertically from the foramen magnum, to meet the posterior margins of the maxillae (and the covered frontals) and then joins in forming the transverse crest.

Viewed ventrally, the skull is symmetrical. The intermaxillae show for a short distance only (3.5 cm.) at tip of rostrum. The maxillae are convex in cross-section, and have two narrow but deep channels towards their lateral margins; these grooves representing the obsolete tooth-row. The palatines

show, in a rather small area, just anterior to the pterygoids. The pterygoids meet mesially for about half their length anteriorly, then are separated by an elongate-ovate space, and again approximate posteriorly at their crests. Their posterior free margins or crests are straight and set somewhat obliquely to a transverse line. From the sides of the inferior nares, two sharp, much elevated crests proceed backward, divergingly, to the region of the auditory meatus, as is usual in allied animals.

The interesting periotic and tympanic bones, or "ear-bones," are dark coloured in the exterior member, which measures 5.8 cm. in vertical length, 3.4 cm. in antero-posterior breadth, and 2.1 cm. in greatest thickness at the superior end; while the interior inflated, shell-like member (the tympanic) is ivory-coloured, rather thin, and beautifully and rather intricately convoluted in a manner which cannot be easily described. Both of the ear-bones have been preserved and are complete. The accompanying plate contains opposite sideviews of the left ear-bone, on a scale slightly less than one-third the natural size. As before mentioned, I believe the ear-bone of this species has never before been figured.

The mandibles (lower jaws) are very thin and delicate, and have little depth at the anterior half where the tooth-row is situated, but are moderately deep at the posterior ends. The symphysis is long (6.5 cm.); and posterior to it the rami gradually, and then strongly, separate from each other. The tooth-rows are thus approximately parallel, and only 1.5 cm. apart, for about half the length of the rows. The length of the tooth-row is contained in the mandibular length, $2\frac{1}{2}$ times; the distance between the condyles is about $\frac{5}{6}$ ths of the same length; and the depth from the coronoid process to the angle, is contained $2\frac{2}{3}$ rd times in that length, while the depth at the tooth-row is only $\frac{1}{6}$ th of the length of the tooth-row.

Teeth.—Upper jaw toothless; teeth in lower jaw, 14 on each side; dental formula, $\frac{0-0}{14-14}$. The teeth are not very firmly attached in the alveolae, and therefore may be slightly moved about. They are rather small, slender, conical, decidedly sharp, very slightly curved inward at the tip and also toward the embedded basal part. Their total length, midway in the row, is .73 inch; the diameter at the basal part is .12 in., and the crown projects out of the gum .35 in. They are separated, from centre to centre, .36 in.

External measurements.—The following general measurements, with the exception of those of the fins and flukes, were made by Mr. Gray, and without doubt follow the contour of the body in some of the dimensions. They also have been reduced to percentages of the total length of the animal.

	Inches	Cm.	Percent.
Total length, snout to notch in posterior margin of tail	102.00	259.3	100.0
Circumference of body	70.00	178.0	68.6
Snout to anterior end of dorsal fin	48.00	122.0	47.1
Snout to anterior insertion of pectoral fin	24.00	61.0	23.5
Dorsal fin, basal length	7.50	19.0	7.4
Dorsal fin, vertical height	3.40	8.6	3.3
Pectoral fin, greatest length, (anterior margin)	12.50	31.8	12.3
Pectoral fin, greatest breadth	5.10	13.0	5.0
Pectoral fin, basal length	5.75	14.6	5.6
Flukes, from tip to tip	23.00	58.5	22.5

The following measurements (chords) were very carefully made by myself from the head. They have also been reduced to percentages of the total length of the head.

	Inches	Cm	Percent
Length of head, snout to basal condyle	17.25	43.8	100.0
Diameter of head, from eye to eye	13.75	35.0	79.7
Snout to anterior margin of eye	13.80	35.1	80.0
Snout to anterior margin of blowhole	10.40	26.5	60.3
Snout to anterior end of mouth (above)	7.50	19.1	43.5
Snout to posterior end of mouth	13.00	33.1	75.3
Mouth opening, length measured on upper jaw	6.25	15.9	36.2
Mouth opening, length measured on lower jaw	6.00	15.2	34.8
Upper jaw, breadth near anterior end	1.50	3.8	8.7
Lower jaw, breadth near anterior end	1.00	2.5	5.8
Lower jaw, width midway in length	2.50	6.3	14.8
Lower jaw, width at posterior end of mouth opening	4.25	10.8	24.6
Blowhole, transverse length	2.45	6.2	14.2
Blowhole, antero-posterior width	.85	2.2	5.0
Centre of blowhole to centre of right eye	10.38	26.3	60.2
Centre of blowhole to centre of left eye	9.35	23.7	54.2
Right hand extremity of blowhole to centre of right eye	9.16	23.2	53.1
Right hand extremity of blowhole to centre of left eye	8.12	20.6	47.1
That is, the blowhole is situated <i>to left</i> of medial dorsal line	.52	1.3	3.0
Eye, length	1.00	2.5	5.8
Eye is 7.20 ins. (18.3 cm.) above, and about 2 ins. (5 cm.) posterior to the posterior angle of mouth			
Blubber, thickness at back of head	1.40	3.6	
Skin, thickness	.02	.05	

Cranial Measurements.—The following are the measurements of the skull, with the same reduced to percentages of the total length of the skull:

	Cm. Percent.	
Total length, from centre of line joining surface of occipital condyles to extremity of rostrum.....	34.8	100.0
Length of rostrum to line joining bases of maxillary notches....	18.2	52.3
Length of rostrum to outer end of maxillary notches.....	15.2	43.7
Breadth of rostrum at base of maxillary notches.....	12.8	36.9
Greatest breadth of rostrum in front of maxillary notches.....	16.5	47.4
Depth of maxillary notches.....	4.3	12.4
Breadth of rostrum midway in its length.....	10.6	30.5
Breadth of right intermaxilla at middle of rostrum.....	1.7	4.9
Breadth of left intermaxilla at middle of rostrum.....	2.0	5.8
Breadth of both intermaxillae between their exterior edges, at middle of rostrum.....	6.5	18.7
Greatest breadth between intermaxillae posteriorly.....	8.2	23.6
Length of right tooth-groove.....	12.0	34.5
Length of left tooth-groove.....	10.9	31.3
Posterior end of right tooth-groove to base of maxillary notch....	6.1	17.5
Posterior end of left tooth-groove to base of maxillary notch....	7.3	21.0
Extremity of rostrum to anterior margin of right superior naris...	20.2	58.0
Extremity of rostrum to anterior margin of left superior naris...	18.6	53.4
Extremity of rostrum to end of pterygoid crest, mesially.....	21.5	61.8
Extremity of rostrum to end of pterygoid crest, laterally.....	22.1	63.5
Anteorbital breadth (between processes of malar).....	27.4	78.7
Breadth between orbits.....	28.0	80.5
Breadth between squamosals (postorbital breadth):- greatest breadth of skull.....	28.4	81.6
Breadth between hinder margins of temporal fossae.....	18.0	51.7
Greatest breadth of occipital bone.....	23.9	68.7
Temporal fossa, greatest length.....	8.1	23.2
Temporal fossa, greatest breadth.....	5.2	14.9
Length of mandible.....	30.6	88.0
Length of symphysis of mandible.....	6.5	18.7
Length of tooth-row of mandible, right.....	11.8	34.0
Length of tooth-row of mandible, left.....	12.0	34.5
Depth between angle and coronoid process.....	8.3	24.0
Distance apart of upper edges of mandible, halfway in length....	6.7	19.2
Diameter of right naris, antero-posteriorly.....	1.3	3.7
Diameter of right naris, laterally.....	1.1	3.2
Diameter of left naris, antero-posteriorly.....	4.0	11.5
Diameter of left naris, laterally.....	3.2	9.2
Diameter of largest tooth.....	24	7

Micmac Indian tradition of a blunt-headed whale.—On showing the head of this whale to a very well-informed Micmac Indian, Jeremiah Lone-cloud (*alias* Bartlett), he examined it carefully and stated that he had never seen the species before, but from descriptions given him by two very old Indians, Noel Jeddore, who is now dead, and Soolian (William) Bill, he felt sure it must be what was known by the Indian name *Ded'-men-ak-paj'-jet*, a name which means "blunt-head" fish. Noel Jeddore had been born at Melrose, St. Mary's, N. S., and

died about 25 years ago, aged 84 years; and old Soolian Bill had formerly belonged to Cape Breton Island and now lives on the Truro reservation, aged about 97 years.*

Noel Jeddore told Lone-cloud that about fifty years ago, say about 1870, he and other Indians were encamped on a small island called by the Indians *Up-quaw'-we-kunk* or "Bark-camp Island", off West Medford, on the south side of the entrance to Pereau Creek, in Minas Basin, Kings Co., N. S., when a school of about a dozen cetaceans became stranded on a mudflat there. The Indians examined them and got some of the flesh for food, and he said that the cooked back-fin was much relished by them. The animals were about 12 or 15 feet long, coloured black, and had a small dorsal-fin. Such cetaceans had never before or afterwards been seen by Jeddore and his companions, but he had heard from other older Indians that such animals had occurred years previously, and that they had been called by the Micmacs *Ded-men-ak-paj-jet*, from the blunt appearance of their head. This word resembles an old Micmac name applied to another rare cetacean which once occurred here, *Ded-men-ak-part*, which means "head cut off squarely," not merely "blunt-head." Further reference will be made to this latter animal when I come to write of the true Sperm Whale. (See page 112).

Old Soolian Bill very recently told Lone-cloud that he also had seen the cetacean which they call *Ded-men-ak-paj-jet*, and said it occurred in the same season when the others were taken off West Medford. About fifty years or more ago, he states, a number of sea animals of the kind seen at West Medford came ashore in a "gut" of water near the Indian reservation at Whycomagh, St. Patrick's Channel, Bras d'Or Lakes, Cape Breton Island.† Bill and other Indians examin-

*The well-known and respected Micmac Indian, William Prosper, usually known as "Soolian Bill," died at the Truro Reservation on 3rd April, 1923, and it was claimed that he was one hundred and one years of age. The name Soolian is evidently a corruption of the French name Guillaume (William). He was born at Bay of Islands, Newfoundland, and came to Whycomagh, Cape Breton, about 1848, removing to Dartmouth, opposite Halifax, in 1860, the year the Prince of Wales was in Nova Scotia. About 1888 he finally went to Truro. If he came to Halifax in 1860, as stated, the date of the occurrence of the above-mentioned cetacean at Whycomagh must have been prior to that year.

†It may be mentioned that at the same time that these cetaceans came ashore at Whycomagh, two very large whales (Micmac *Boot-up*, name for any large whale) came in at the same place and one ran ashore and was killed by the Indians with a scythe-blade on the end of a pole. Soolian Bill saw it, and he said it made a great commotion with its very long fins, so that one had to be careful in approaching it. It was towed to Arichat, Rich. Co., and there the blubber was removed. It is not reported whether it had a back-fin or not. Probably it was the Humpback Whale (*Megaptera nodosa*).

ed and cut up the animals and obtained much oil from the blubber; and one which they opened contained a foetus. They also called the animal *Ded-men-ak-paj-jet*, agreed that it was the same species as that taken in Minas Basin, and that it was extremely rare, but that old Indians told them it had been taken years before. It also had a dorsal-fin.

The rare animals described by Jeddore and Soolian Bill were not Black-fish (*Globicephala melas*) which is the only other distinctly "blunt-headed" cetacean it might be confused with, and which is a common species, well known to the Indians as *Sarb'-a-dee'-meekw*, which means "John Fish," but why so-called is not known. The Bottlenose Dolphin (*Tursiops truncatus*) has too much beak to be particularly designated as the "blunt-head." We are therefore led to conclude that these very rare cetaceans referred to by our Micmacs, must have been the Pygmy Sperm Whale (*K. breviceps*), which answers the Indians' rough description in having a blunt head, a dorsal-fin, and being about twelve or fifteen feet long, black in colour, and very rare in these waters. The presence of the dorsal-fin shows it was not the true Sperm Whale, for which apparently our Indians also have a descriptive name. This is a related subject to which we will now refer.

SPERM WHALE (*P. macrocephalus*).

Did the True Sperm Whale formerly occur on the Nova Scotian coast?—Whether the huge Sperm Whale or Cachalot (*Physeter macrocephalus* Linn.) ever occurred on our Nova Scotian coast, accidentally or otherwise, in the early years when its range was very much less restricted than now, is a point which is not definitely settled in my mind, although from evidence at hand I am very decidedly of the opinion that it must have. In a paper like this, dealing with a related species, it may not be altogether out of place to give a little attention to the subject.

Many years ago the true Sperm Whale was reported all along the New England coast as far north as Casco Bay, Maine, where it is recorded that one was stranded in 1668.* Casco

*G. M. Allen, List of Mammalia of N. E., Occ. Papers Bost. Soc. Nat. Hist. 7, pt. 3, Bost. 1904; and G. Brown Goode, Fisheries and Fishing Industries of U. S., sec. 1, page 9, Wash., 1884.

Bay is in the same latitude as southern Nova Scotia. In August 1761, one was killed in lat. $45^{\circ} 54'$, long. $53^{\circ} 57'$, which is off the southern Newfoundland coast and 275 miles due east of Scaterie, Cape Breton; and in 1766 another was seen near George's Bank, which is to the south of Nova Scotia and a little beyond its limits.* These are merely recorded occurrences, but of course there are many others which did not happen to be noted. The most northern grounds which they regularly frequented some thirty-five years ago, were off Cape Hatteras. Glover M. Allen, in a recent letter to me, writes that "the Sperm Whale (*P. macrocephalus*) must occasionally reach Nova Scotian waters, although I do not recall at this moment a definite record. It is taken once in a while off the Newfoundland coast at the whaling stations." The manager of a Newfoundland whaling station told Prof. E. E. Prince that their whaling vessels had twice taken Sperm Whales off the Cape Breton coast and towards Newfoundland.

While this paper is in type, I find a thrilling account of the capture of thirty Sperm Whales in the harbor of Keels (lat. $48^{\circ} 32'$) in Bonavista Bay, almost eighty miles north-northwest of St. John's, Newfoundland, in the early part of August, 1922. The account, by Thomas Kelly, appeared in the "Canadian Fishermen," Gardenville, P.Q., Oct. 1922, vol. 9, p. 221, and it describes a remarkable instance of daring among the Newfoundland fishermen. A motor-boat from Keels, when a few miles off land, encountered about seventy large whales, which the fishermen mistook for Blackfish or "Pot-heads" (*G. melas*) and which they accordingly undertook to drive to the shore. Some seven motorboats took part in this operation, three boats on either side, and one behind making much noise with its exhaust. The large animals went shorewards like a flock of sheep, and made no commotion even when a boat happened to run upon one of their backs.

When, however, the whales found that they were entrapped in the cliff-surrounded harbour of Keels, they began to fight terrifically, and the men, in some twenty or thirty boats, commenced to kill them. Hatchets, axes, knives, and guns were used in efforts to subdue the monsters. Forty-eight bullets are said to have been fired into the head of one of them. Men were to be seen on the backs of the animals, chopping with axes. No

*G. B. Goode, loc. cit., page 8.

men were killed, although a small boat was smashed to pieces. Hawsers and steel cables were made fast to some of the whales but were snapped with great ease. Some of the infuriated animals dashed themselves against the cliffs and so died. In all thirty were killed.

The services of a man who for ten years had been foreman of a "whale factory" were secured, and he identified them as Sperm Whales. Wells were made in the heads of the monsters, and a great quantity of pure oil was dipped therefrom; from one to four puncheons of fluid being taken from each head.

Additional particulars of this very remarkable occurrence were forwarded to me on 19th January, 1923, by the Department of Mines and Fisheries of Newfoundland, which had obtained the information from a most reliable source, Mr. J. F. Murphy of St. John's, who had visited Keels and examined the dead animals. Mr. Murphy says that they were undoubtedly Sperm Whales, the most valuable of the cetaceans, and he enclosed a carefully prepared drawing with measurements made by himself, which proves conclusively that their specific identity had been correctly determined. They were all young males, and varied in length from 45 to 48 feet, whereas an adult male sometimes measures as much as 80 feet. The one he measured particularly was 47 feet in greatest length from the anterior end of the truncated snout to the tip of the flukes or tail. From the snout to the posterior angle of the mouth it measured 12 feet; and from the angle of the mouth to the extremity of the flukes, 35 feet. The vertical depth of the head, from the dorsal region to the mouth, was 7 feet; and the distance between the two ends of the flukes was from 9 to 11 feet. It had 22 teeth in each side of the lower jaw. Three of the teeth, forwarded by Mr. Murphy to the Provincial Museum, are definitely the teeth of the true Sperm Whale.

He says that about forty-four of the whales were driven ashore at Keels, the harbour of which is of circular form, everywhere surrounded by vertical cliffs except at the entrance. The fishermen killed thirty of them, using guns, axes, mowing-scythes, and sharpened sticks employed as lances. In some cases stout pieces of timber with pointed ends were driven into the blow-hole of the animals, which maddened them, and so furious did they become (probably because of the difficulty experienced in their efforts to breathe) that they dashed themselves against the cliffs,

thus driving home the stakes which had protruded from the front of their heads like a vessel's jib-boom. These animals died suddenly. Later the others, which were wounded, went into a "flurry" and thrashed themselves to death against the cliffs and isolated rocks.

Knowing that the valuable substance called ambergris is obtained from the alimentary canal of this species of whale, Mr. Murphy went to Keels and had the stomach of one of the carcasses opened. In it was found about a bushel of the beaks of small and large species of squid, the favourite food of this whale, the beaks being of all sizes from a quarter up to one-and-a-half inch in length, each with a curious growth on the larger end, somewhat like a cock's comb. No ambergris was found. It is known that beaks of the cuttle-fish or squid are frequently found embedded in ambergris sent to market, and Mr. Murphy believes that the irritating action of these pointed beaks on the animal's stomach causes the formation of that material. Other carcasses were then opened, but also without finding real ambergris. One, however, contained a growth about six or eight inches long and about six inches in diameter, having holes in it like those of a sponge, and varying in color from pale green to dark brown. This was examined by the government analyst, Mr. Davis, who reported that it was not ambergris. It is possible that it may have been an early stage in the formation of that substance, and that the animals were too young to have developed it perfectly.

The fishermen were unfortunately entirely unprepared for such an unexpected and unprecedented occurrence, and had no knowledge of the great value of such whales, and they destroyed them, with but little if any profit to themselves. Two or three groups of men dipped from four to five hundred gallons of pure, clear sperm-oil from the head of each whale. Very little of it, however, was saved, as they had no facilities for properly handling it owing to the huge carcasses and the workers being exposed to the wash of the surf.

Sperm whales usually swim in herds or schools, or else singly. The schools consist of (a) females and their young, with one or two adult males, and (b) young and half-grown males. Full-grown males go singly in search of food. The Keels school was one of the herds of half-grown males, which had no doubt come northeastward in the Gulf Stream, and then by chance had

wandered westward to the Newfoundland coast, in pursuit of the great multitude of squid which are its principal food.

When we consider the northern range of the Sperm Whale in early years, before the persistent industry of whalers had nearly exterminated it in the northernmost waters of the Atlantic, it cannot be possible that that species did not also occur in our intervening waters, at least casually if not somewhat regularly, a couple of hundred years ago and probably much later.

In the absence of definite records, we naturally turn for some light on the subject to our Micmac Indians who are keen observers of natural objects which come to their attention, and whose ability for handing down information traditionally, in the absence of written records, is truly remarkable.

Our Indians inform me that very old men of their tribe have an ancient tradition, handed down by their fathers, of a very rare cetacean which the later men have never seen. To this animal they gave the very characteristic descriptive name of *Ded'-men-ak'-part*, which signifies "head cut off sharply or squarely," or as my informant, Lone-cloud, further explained it, "Just the same as if you cut the head off squarely in front." Such a name could surely only have been applied to the Sperm Whale, whose large and remarkably blunt head is so characteristic a feature that it would instantly have attracted the sharp eyes of our natives on viewing a casually stranded individual, and who, in their well-known fashion, would have included this character in framing a descriptive name which has been handed down to later generations. It must be noted that this name is to be distinguished from the related one, *Ded-men-ak-paj-jet*, to which reference has previously been made, which means an animal with merely a blunt head, and which I believe designated the Pygmy Sperm Whale, as a dorsal-fin is specifically referred to as being present. The same Indian knew the two names and applied them to different animals. The name *Ded-men-ak-part* was known through tradition to both old Soolian Bill, formerly of Cape Breton Island, and to Nole Jeddore, before mentioned, so that the animal probably occurred both about that island as well as off the mainland of Nova Scotia. Unfortunately the tradition does not seem to mention whether the dorsal fin was absent in this very blunt-headed cetacean; for if it did, the identification would be as about complete as could be desired.

Conclusion.—Taking into consideration all the evidence, I think we may quite safely conclude that *Ded-men-ak-part* of the Micmacs was the true Sperm Whale and that it formerly occurred to some extent at least in our Nova Scotian waters.

Teeth of this cetacean should be searched for in some of the Indian shell-heaps or kitchen-middens in Nova Scotia, as the natives would no doubt preserve such relics of an unusual marine animal if one had been stranded on our coast.

In the DesBrisay collection of Indian remains collected in Lunenburg County, N. S., now in the Provincial Museum, is a small tooth, a good deal corroded, which has a general resemblance to one from an exceedingly young Sperm Whale.* But it may even prove on further examination to be merely a young Bear's canine tooth, which somewhat closely resembles the former. I do not believe it belonged to a Black-fish (*Globicephala melas*) or any other cetacean I happen to be familiar with, and it is decidedly not a tooth of a Pygmy Sperm Whale. It measures 1.87 in. (47.5 mm.) in greatest length; its diameter, midway in length, is .48 in. (12.5 mm.); it projected out of the gum .57 in. (14.5 mm.), and the conical free end (crown) is very strongly incurved;

The Provincial Museum possesses several Sperm Whale teeth, but they have all been brought by whalers from the southern whaling rounds.

Provincial Museum, Halifax, N. S.,
9th February, 1920.

*The smallest Sperm Whale on record, taken on the New England coast, was one 16 feet long, taken near New Bedford in 1842.