Vancouver Island B. C.

Apr 25 — '08 (i.e. June - Aug. 1908)

Alaska

Aug 1 — 27

Roy C. Andrews
American Museum
Natural History
New York

On June 9-08 at 4 o'clock in the morning I was awakened by a knock on my door & the words, "It's four o'clock Sir & the "Orion" is ready to go" I hurriedly pulled on my rubber boots and oil-skins and was soon out on the wharf where a small boat was waiting to take me ~~out~~ to the steamer. It was a beautiful morning and as we sailed down the Sound toward the open ocean the sun just peeping over the far-away snow-capped mountains, drew long slanting paths through the fog which lay low over the water ahead. Three miles of steaming among the little wooded islets of Puget Sound brought us to the mouth ~~Cape Flattery~~ which guards the entrance to ~~the straits of Juan de Fuca~~, and we were soon riding the long swell of the open Pacific. Ahead of us the fog lay like a great white blanket but the wind which soon began to break the top of the waves into white-caps gave promise of a clearing away the first time the morning was far advanced. Mile after mile was registered by the whirling log which trailed in the water behind us,

and when we were some thirty miles at sea the Captain told me that we were then on the edge of the feeding grounds where we could expect to see whales at any time. Hardly had the words left his mouth when the man in the "barrel" at the masthead sung out "Whale on the port side" We looked to the left & there was a faint mist just dissolving in the wind nearly half a mile away - almost instantly another cloud of vapour shot up into the air, and then in a whirl of white water the whale sank. "Humpback" said the Captain but he's all alone; it won't pay to chase him." The steamer kept on ahead, and we did not see the whale again although from the bridge with the glasses in my hand I swept the water on every side. Evidentally the great animal had not found the little sea-shrimps on which it feeds & which float just under the surface of the water, & was "on the run" as the whalers call it, looking for new grounds. Twenty-miles more and no whales in sight, and the wind began to freshen. The little

steamer rolled + pitched & twisted as she plunged into the great waves, her decks washed by the water which swept over her at every plunge.
"Sea-sick" asked the Captain as he saw my face begin to have colour and my hands grasp the rail of the bridge to steady myself. "A little" I answered, but the half had not been told, for few are the men even those long used to the sea who are not put "under the weather" by their first day on these little roller-battered, rolling whalers.
It was three o'clock in the afternoon before the man in the barrel again sang out "Whales ahead". I made my way forward along the pitching decks, climbed the steep ladder to the bridge and stood beside the Captain. "There they are" he said pointing over the starboard bow, and looking in the direction indicated I could just make out four or five spouts far in the distance. A little further out and another spout appeared on the port side followed by the "flukes" or tail of a huge whale. This whale

spouted, & then went down head foremost drawing the flukes out of water, throwing them & half of the body into the air. That a ~~Sufficient~~ said the Captain as he swung the steamer round towards the place where the whale had disappeared, & signalled for full speed. The little vessel plunged through the waves & was soon almost upon the long "slick" of smooth green water left by the whale as it sank. Here we stopped waiting for the whale to blow again. However we were doomed to disappointment, for no sight or sound of the animal was again obtained. "He's travelling for feed" said the Captain "& we've lost him — we'll see what these fellows are doing" The other whales, which were Humpbacks, could be seen spouting at intervals on the starboard side, but were moving fast; this was a bad sign for it indicated that food was scarce, & the animals would be hard to approach. And such was the case we found, for each time when we neared a whale, after

are active sports, it would sink and not be seen again. When diving these Humpbacks would dive head first ~~under the water~~, slowly the back would come into view, then the dorsal fin & the peduncle — only once did I see a Humpback draw the flukes out of the water, & in this dive the back was "humped or rounded, so that the part appearing above the surface had the form of an arc of a circle. When first appearing the animals would usually show with just the top of the head showing, disappear and in about thirty seconds rise again for another spout. On this second spout though the body was shown above the surface, & the animal dove in the manner described above. Once or twice I saw a whale blow three or even four times before taking the final "big dive", but twice was the usual number. The length of time under the surface varied considerably and I did not find this exactly by my watch, but it was from ten to twenty minutes.

After nearly two hours of chasing first one, then another of this school

of Humpbacks the last one was long to miles and we started ahead in search of more. Twenty miles were passed, putting us seventy miles out to sea, before we were rewarded by the sight of another whale. This time one was seen close on the starboard side and seemed to be feeding. Hastily I followed the Captain from the bridge up forward to the harpoon gun where with camera in hand, I braced myself against a rope. The steamer was pitching furiously and when she climbed a huge wave to plunge head foremost down on the other side, it was all ~~a man~~ one could do to help his feet. Clinging to the rope with one hand, ~~of~~ shielding the lense of my camera with the other from the flying spray, I waited till the whale should reappear. Suddenly the Captain said "There he comes on the port bow" & looking in the direction indicated I saw the water begin to smooth out in a large green patch about 100 yards away. Almost instantly the whale turned into view, sending his spout ~~to the height of fifteen~~ ten or

fifteen feet into the air. Evidently he saw us for he was down again in a second without another blow, only to reappear again some yards astern. At each time he blew, the act was accompanied by a loud "sucking" sound, such as would be made by a person drawing the breath forcibly through half-closed lips. Again he came to the surface, ~~then~~ on the starboard side, and ~~to~~ the noise of his single spout sounded like the muffled clap of two great hands. Throughout this he showed himself, never near enough for a shot or good pictures, and seemed to be enjoying the game of tage he was playing with us, to the fullest extent. Thus he ~~jumped~~ threw himself clear out of the water, showing even the tips of the flukes, & falling back ~~on~~ with a resounding slap, like the report of a gun. Once his head & ~~head~~ throat, back to ~~this~~ fins were thrust ~~of~~ out of the water but always beyond the range of either gun or camera. Once however after he had been down

pulsing

an unusually long time, the ~~pulsing~~ pulsing brought the steamer back into just the right position & she rolled down right under our stern bow. ~~He was down again~~ As he rolled, the crash of the harpoon gun sounded, but a great wave had thrown the steamers bow into the air at just the wrong time, & the ~~shot~~ harpoon did not reach its mark. This was all known for we did not see the whale again.

We remained out all night as it was too far to run into land that evening, but the next day was rough & no hunting could be done. Coal was needed so we came back to Sidney, reaching there about two o'clock in the afternoon.

Summary Humpback

Usual number of times of spout - 2 - spouts ranging from 1 to 4 -

Spout from 10 to 15 feet high as near as could be judged -

Spout always accompanied with noise, such as would be made by a person sucking in the breath forcibly thru half closed lips - sometimes

noise of 2 foot hands like muffled clap of 7 hands.

Flick always left on water when whale goes down — also just before he rises to surface —

Short barbs like this in shape —

Flukes only shown by one whale when diving —

One humpback throughout clear out of water twice

Temp. of trim under water 104 20 min.

exposure 330 diaf 8 to 16 sun & good light

Humpbacks July 8-08
Flukes usually drawn out of water when diving the many times but — Many of the whales I saw had the flukes white below — others black above + below —
Several times I saw two whales apparently standing on their heads throwing their flukes from side to side + lashing the water into foam — this was done several times. These whales was blowing continually + not staying under water very long when diving — The spouts were usually about 10 or 15 feet high, + the first one of the whales reappearance at the surface, was the longest + highest — Several times I saw a whale spout close to the vessel, + saw that the blowholes were distorted greatly during the operation — (see photo) + the blowing was accompanied by a loud "huh" — The whales of this school seemed to be in pairs to a certain extent

The whaler had come in late in the night and as she must take on coal before starting it was 9 o'clock ~~in~~ the next morning before we got away from the wharf. It was a beautiful day with a light westerly wind blowing in from the sea, just sufficient to ruffle the tops of the waves into white foam as they rolled & broke. The mountains about Puget Sound were never more beautiful with their ever changing colors of lavender & deep purple, spring green above the clothing of fir & hemlock. We ran down the sound past the little village of Suwash huts, at the entrance to the harbor and were soon rolling on the long swell of the open Pacific. A heavy fog was hanging close to the edge of the land, but half an hour running put us beyond the gray wall of mist, & the blue water stretched away to the sky line.

I was on the bridge with the Captain when after an hour's run, the man in the barrel shouted, "Whale on the starboard side!" "How many" asked the Captain. "Four" said the lookout, "and they are moving fast" That was a bad sign, but the vessel's nose ran

pointed in that direction, and the signal for full speed ahead was given. Watching the harpoon line intently I saw a column of spray shoot up into the air, then another, & another still. The whales were coming in our direction and soon we were right among them. I stationed myself in the bow beside the harpoon gun with camera in hand waited the reappearance of one which had gone down on the port side. Soon I saw the long smooth "slick" of green water which showed that the whale was coming & ~~[illegible]~~ before I could swing my camera in that direction the huge animal burst from the water sending a column of ~~[illegible]~~ spray high into the air. He was down again in a second, but the captain said "watch the starboard bow. Six bell come up there I think" - Hardly had the words left his mouth when a cloud of spray was sent into our very faces as the whale blew right under the bow. Swing my camera about I present the butt just before the crash of the harpoon gun sounded, and ~~turning~~ his flukes

high into the air the whale went down dragging the heavy line behind it, & in another instant a muffled roar was heard in the water then the line hung straight down from the bows - The bomb had exploded & the whale was dead with hardly a fight for life. Then began the slow heaving hauling by the steam winch hoisting the whale to the surface - when it appeared at the steamers side a chain was made fast to the flukes of the whale hoisted tail foremost up on vessels side. Then men with long handled whale spades set to work to cut off the flukes, for as they yield little oil & are an awkward thing to handle they are seldom brought into the factory. First one fluke was severed & then the other and dropped off into the water as fast as the sharks, albatrosses & other sailors were at work with the blubber knife & soon the long sharp pointed & black canvas covering the tube was yanked well down into the whales side & the signal to turn on the air was given, & the whale was slowly filled with air - a spear pointed shaft with a flag at the end was then pushed into the animals side, the chains let go & the carcass set adrift.

We picked up at the end of the day's hunting. By this time the whales had gotten together & were all around us — on every side, spout of spout shot into the air & the water that white ~~with~~ from the lashing flukes — Once I saw two monsters apparently standing on their heads in the water, turning their tails from side to side as if in play. Again a big fellow rose on the port side, so close ~~[illegible]~~ beside the steamer that the gun could not be turned down, and blew in our faces. A lurch of the vessel threw me off my feet just as he was coming to the surface, but scrambling to my knees I snapped my camera just before he went down, catching him with the bowlders still distended. ~~[illegible]~~ He was away a short ways & as the steamer came swing about he came up right under the bow. "Fire!" yelled the captain, and ~~at the~~ with the words came the crashing roar of the gun; the whale threw his flukes high in the air shaking them as ~~this~~ he raised them out of the stinging barpoon, turned head downward & sank. The huge lines ~~[illegible]~~ over the rollers as fathom after fathom went ~~[illegible]~~ out with the ~~rush~~ terrific rush

of the whale, "We'll have to stop him" said the Captain, "or he'll take all our line & hit him to far reach" The brake of the winch was set, ~~slowly~~ lightly at first then harder & harder, and the line tightened till it seemed as tho' ~~the~~ the strands would part, as the whale was checked in his rush, the steamer dipped forward, & was touch with tremendous force thru' the water. However the great steamship began to tell on the struggling whale, he slackened his speed & almost stopped. "Full speed on the winch" said the Captain & as the line reeled in the whale was drawn slowly toward the boat. He was blowing continually now, the spray of his spout tinged with red & not! there a great mass of blood oozing from out his spout-holes - "He's almost done for" said the Captain, "we can lance him from the bow"

No. 37 Sulphurbottom ♂ July 6-08 Kyuquot B.C.

Color Top of head back to offset insertion of fins clear slate blue (not so dark as usual) on sides of back just above fins & forward to a little beyond eye is an almost white area of very light blue gray from ~~eye~~ eye to ear this area is very narrow & triangular on back & upper sides to a point offset the fins then is much more light color than dark - it is broken by the darker blue gray in only a few places - from pering to flukes sides of peduncle has more ~~light~~ dark color than ~~dark~~ light - the light markings are heaviest on the upper side of the peduncle - from anus to flukes the lower edge of the peduncle & a little way up on the sides is flecked & dotted with fine light markings - navel to anus mid-vertical line is clear gray unmarked - a white patch at navel -

Right rami of mandible & chin blue-gray - sides of throat & across to median line is slate which extends backward nearly to the insertion of the fins - This makes a rather narrow dark band or color about the throat of the whale - from fins back, lower sides, breast & belly are blue gray - throat & breast quite thickly marked with very light gray flecks - from fin running diagonally

downward + backward is a thick line of white markings nearly to mid-ventral line — the white markings are mixed with light gray ones — penis dark brownish gray at base — distally slate blue.

Pectorals Below white with a light gray patch at insertion — Above tip + ant edge of distal third are white — rest of fin above slate —

Baleen + bristles + roof of mouth deep blue black — inside both rami have upper half slate — lower bluish white — tongue blue slate.

Notch of flukes 18 deep + 36 wide at top

Osteology

18 chevrons (sacral) — 1st chevron is small + represented by only the right lamina — this however is said here — also sign of the left. The 5th chevron is both the highest + broadest distally of the series — 4th is almost as high as 5th but much narrow distally — 15 pairs of ribs

C_7 D_{15} L_{15} Ca. 29 = 66 (Sacral)

The terminal caudal is the sign of a vert but fully ossified —

1 - 2020	10 - 10	27 - 103
2 - 905	11 - 1.05	28 - 58
3 - 423	12 - 595	30 - 8
4 - 528	13 - 733	31 - 32
5 - 356	14 - 915	33 - 18
6 - 670 (?)	16 - 463	34 - 148
7 - 1560	18 - 319	35 - 330
8 - 110	20 - 74	41 - 190
9 - 19	21 - 17	42 - 42
	23 - 106	43 - 34

No 42 ♂ Sperm July 18-'08 Kyuquot B.C.

Color Top + sides of head, back + sides to flukes, all dark chocolate - The upper lips for about 2 feet from edges up the sides of the head are white - the white grades into the dark of the head gradually the gradations being light chocolate streaked with white - The lower jaw is white on the sides with a very few long narrow chocolate dashes - below (on the jaw) the dashes are so thick that the white is excluded except in a few places - the white extends back to a little beyond the corners of the mouth following each ramus of the mandible as they begin to move outward from the symphysis - the dark of the throat runs up in a triangle between the proximal ends of the mandible - from the anterior end of the mouth to the tip of the snout in the superior median line is a rather narrow, irregular band of white, streaked with broken lines of light chocolate - these lines curve outward + backward on either side of the median line of the snout - Below the belly is dark chocolate like the back except at navel - here there is a large irregular white patch; this patch sends arms outward + backward which surround the penis - the white of the arms grades off on the sides + at the ends into gray

shadings – all the white parts about the mouth are covered with a yellowish slime, which is easily rubbed off with the finger; there is no yellow pigment in the dermis. On the sides a grayish area extends from opposite penis to insertion of fin. There are ~~one or two~~ small grayish patches just below the bump.

~~Lower jaw~~ Inside roof of mouth is whitish-purple proximally grading into light violet distally – Inside lower jaw is white tinged with purple proximally – The tongue, which is very small & can just be seen when looking into the mouth is gray-green in color – it is stiff & like the throat is deeply corrugated everywhere.

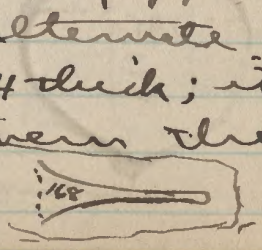
Lower jaw The lower jaw is rounded at the distal end – the sides only slightly from distal end to point of branching of ~~the~~ rami – Breadth of lower jaw at given distances from tip are as follows:

25 from tip is 30 wide		In the upper
100 " " " 36 "		jaw there is an
200 " " 40 "		indentation into

width distally of lower jaw is 70 – which each tooth fits –

The teeth are not placed exactly opposite each other on the two sides – alternate

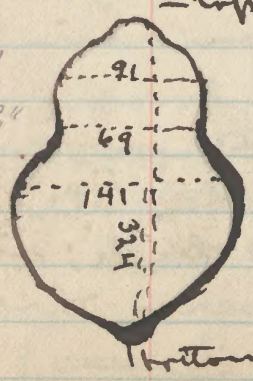
The edge of the upper ~~jaw~~ lip is 4 thick; it is rounded. The distance between the corners of the mouth is 168



There are 25 teeth on right side of lower jaw
" 24 " " left " " " "

Head + Snout – The head is oblong + square ended – ~~the~~ edges round off gradually at the end of the snout – proximally the sides of the head swells out to ~~[illegible]~~ the eye. On the top, from the base of the skull to the snout the outline is very slightly convex – that is the base of the skull + the snout are a trifle higher than the central portion. The snout in the center is 141 wide; it is 324 deep + the width of the upper portion of the snout is 91

A little above the center of the snout two deep ~~[illegible]~~ wide depressions run backward + downward – the width of the snout between the ends of these depressions is 69 – The depressions mark the anterior half of the spermaceti "case", + become narrower + shallower as they go backward, finally vanishing ~~[illegible]~~ (center) On the very top of the snout there is a low rounded eminence, on the left side of which is the blowhole – A cross section of the snout looks like this



3'
2' 3"
4' 8"

119 cent. from the corner of the mouth forward + ~~[illegible]~~ there is on both sides of the upper lips a marked transverse depression or crease about 6 or 8 inches long.

On the very center of the top of snout is a shallow depression running

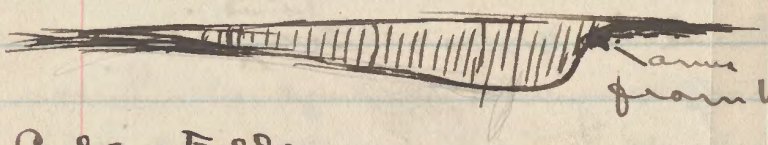
from opposite the posterior end of the blow-hole forward almost to tip —
The diameter at eyes which is the ~~thickest~~ point of the whole is 273 ~~in~~ (straight)
The whole head is smoothly a point a little back of eye on top & just to eye on sides. The rest of the body is covered with wavy broken ridges running nearly parallel — on the upper sides the long axis of these ridges are directed obliquely inward — on back long axis run fore & aft ridges are most prominent between the eye & arm on the sides + least between fins. On the belly the ridges are very prominent but are further apart — a low ventral median ridge runs forward from anus to a point nearly opposite the insertion of the pectoral, where it is lost.

On the top edge of the peduncle from the hump to the flukes are many knobs & crenulations, such as are found on the Humpback only more prominent & irregular —

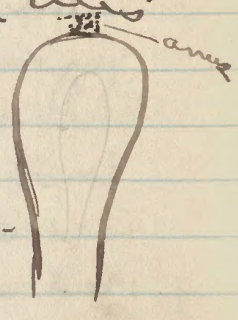
There are two creases on either side a little behind the penis insertion

On lower edge of peduncle, from the posterior edge of the anus a great rounded hump rises abruptly. This hump swells outward abruptly just behind anus; it is bordered on either side by a deep depression; the hump is highest a

little way behind the anus & becomes last near the flukes - it looks like this (side view)



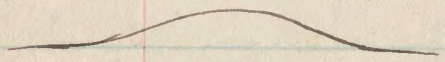
a cross section is like this from below



Gular Folds

There are 7 well marked creases on the throat & between the rami of the mandible, proximally - these creases are of varying depth & ~~extent~~ lengths, some being ~~well~~ much more marked than others; they all run fore & aft; they cover an area 130 long. Only four of these creases are 3 cent. deep - rest all very shallow -

Hump. The hump is an evenly rounded eminence 24 high; it looks like this;-



Blowhole Measures (straight) 36
" (curved) 37

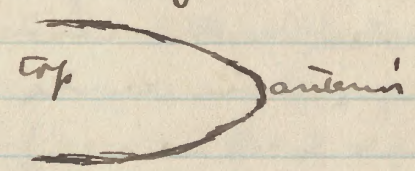
The blowhole is curved like this; It is on the left side of the tip of snout; its center is 86 above the center of the longitudinal depression marking the case. At the side of the blowhole rises the low rounded eminence marking the extreme summit of the snout

~~Flukes~~ Blubber On side of head blubber is very thin - only 8 thick - between the pectorals it is 22 thick - on sides of the peduncle it is 14 thick. Blubber is very hard & tough - it was hard to flense the whale -

"Case" The longitudinal depressions on either side of the upper ~~half~~ third of the snout marks the anterior portion of the spermaceti case. The case occupies the whole upper third of the head, & extends from the tip of the snout back to back nearly to a point opposite the eye - the case narrows gradually from back to front & is entirely covered by sinews about 1 cent. wide which run longitudinally. These sinew-ropes are many layers deep & are stretched very tightly. The method of opening the case was to strip of the sinew-ropes until nearly the bottom layer had been reached. Then a trough was laid having one end at the head & the other in the tank. ~~The "bicot-cut"~~ was. The case was then plugged by a whale-knife & the oil started to run out - The spermaceti was thin enough to run freely - ~~a~~ the case contained all thin oil jelly-like masses in with the free oil - these masses were forced out with the knife. When all the oil had run out which could be gotten from the one incision the cut was made larger & the oil & jelly-like masses, run & bailed out from the remainder of the case

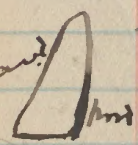
The jelly-like masses were all thru the whole case in with the oil, but could be taken out in great lumps with the spermaceti. The following measurements of the case were taken after it had been opened, so it could determine exactly the whole extent. The spermaceti length of case cavity = 5.80 congeals when
Depth (up & down) " = 1.45 cool air strikes it & looks then like paraffine - only not so hard. Fifteen barrels of pure spermaceti were taken from out the case alone - the spermaceti yielded from the whole head ~~the~~ was 40 barrels (including that in case & all that was taken from the front of the head) The whole whole yielded 90 barrels of oil - including that ~~to~~ taken from the bone, meat, blubber & spermaceti.

The case from above looks like this



The spermaceti peels off very easily; it is in several layers. The dermis also can be stripped off with little trouble but is soft & very easily pulled apart.

Flukes ① If we look at the flukes when cut off & set up on its base looks like this - it is really an acute triangle. The anterior edge is almost straight except just in front of insertion where it is slightly convex. At the extreme tip the ant. edge curves to meet the post. & the two edges form a blunt tip. The posterior edge is very slightly & evenly convex from tip to beginning of notch - the post. edge is 8 mm. thick - it is about the same thickness for its whole extent. The notch is deep & the post. edges curve inward abruptly to form it - the edges overlap - notch is 42 cent. deep - The thickest part of the flukes is 41 from the ant. edge - it is 28 thick here. This cross section (which is near the insertion) is 138 in ant.-post. diameter, 70 cent. from ant. edge fluke is 20 thick - The greatest breadth ~~length~~ ant.-post. of the flukes is 161 -

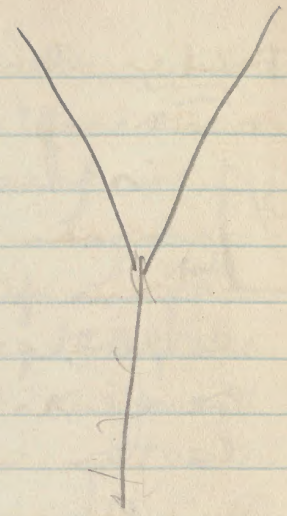


The flukes above & below are dark chocolate like back - there are two small grayish patches near the insertion on the inferior surface.

Pectorals above & below like back - dark chocolate

Right - Tip to head of humerus = 148
" (Breadth of humerus) = 86

Left (tip to head humerus) = 148
" breadth (greatest) = 81



Osteology

Skull Length 5·60
Breadth 2·20

Jaw Length (straight) = 4·90
" (axially) = 5·00
" symphysis = 3·04
Depth proximally of left ramus (greatest) straight = 6·0
25 teeth right side
24 " left "

Ribs 10 ribs right side
11 " left " — the extra rib on the left side is only 1 foot long.

Chevrons 13 chevrons present — 1st is very small & free distally — no spine — 2nd is very high & has a spine 39 long & 17 wide distally. — 3rd is highest of the series — its spine is 43 long & 22 wide distally. The 3rd is only a little higher in the series than no 2 as it stands in position. The spine of the 4th is 39 long & 27 wide — like other whales, the chevrons decrease in height & increase in distal breadth as they go backward in

the series

Vertebrae Cy D_{10} Lq Ca_{23} : 49 Sacr

I do not count the vertebra bearing the rudimentary rib on the left side as a dorsal.

Possibly 24 caudals might be counted for the last vertebra is composed of certainly two, possibly three, ankylosed bodies — it is a triangular block showing the ankylosis of two bodies very distinctly. I also of the opinion that the extreme end (which is about the size of a hazel nut) is a separate vertebra, such as is often found in other whales, but have not counted it as such. The end of the last vertebra is 10 cm from the bottom of notching flukes.

Pectoral fin

I dissected this flipper very carefully. Digits of flipper from head of humerus to tip of longest digit is 148. The last phalanx extend clear to the edge of the flipper.

Metacarpals = 4. The metacarpal of the last (4th) digit is forked proximally the outside fork being composed of two portions connected by cartilage —

The pisiform process from the side of the carpus is an oblong bone 80 mm long.

The formula for the phalanges is
$I_2\ II_4\ III_3\ IV_3\ V_1$ as the 1st digit
the shortest and next the fifth bone.
Digits 2-3-4 have a very small terminal
phalanx - only 20 mil long on digit 4
the space between the phalanges, which
is filled with cartilage, diminishes
somewhat distally - between the
4th metacarpal & the 1st phalanx of
that digit it is 25 mil.

There are 5 carpal ossifications -
three in the distal row & 2 proximally

Humerus
Radius
Ulna

The radius & ulna are both firmly
anchylosed to the distal end of the
humerus - so firmly that the end of
either bone can not be determined
accurately - the ones given below
are as nearly as possible correct

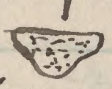
Length humerus	= 450	mil
" radius	= 320	
" ulna	= 270	
Breadth radius distally	= 190 (or 7)	
" ulna "	= 200	"

The ulna has a very well marked olec-
ranon process - this is 110 mil. long
& 130 mil broad at distal end.

Scapula Left (?) External surface is deeply
concave - The spine & prescapular
fossa are indistinct -
The superscapular edge is irregular

convex – at the coracoid border, anteriorly, it stops abruptly.
The acromion is long & expanded distally ~~being much~~ The coracoid is long rather slender & expanded distally.

Height = 810 mil.
Breadth = 690 "
" glenoid fossa = 200 "
Length acromion = 340 "
Breadth " distally = 260
Length coracoid = 220
Breadth distally = 85

1st Rib. Fourth rib is heavy & strongly curved distally a cross-section looks like this  – it is somewhat flattened proximally; it has a large heavy tubercle & a short thin neck ending in a blunt point which may be called the head.

Length (straight distal end to center of tub) = 1120 ~~1300~~
" curved " " = 1300
Breadth proximally = 240
" distally = 310

Sternum The sternum is irregularly triangular in shape, with the point downward where it is positioned. It is composed of at least two ankylosed portions – possibly more. In the center of the upper portion there is a large oval opening – the center of the sternum

is greatly thickened & the whole lower portion is rugose – the distal end is square – the dental surface is convex the inner concave. There seem to be articulating ~~for~~ surfaces for four ribs – however this can not be determined exactly.

Length of sternum = 1260 mil.
Breadth (above) = 1120 "
" (below) = 160 "
Thickness in center = 250 "
Length of opening upper half = 250 "

The stomach contained remains of a shark four or five feet long & a great number of cuttlefish beaks, together with ~~the~~ parts of the body of several large squid.

1 – 1830	21 – 24
2 – 1140	22 – 478
3 – 570	23 – 125
4 – 630	24 – 253
5 – 20	25 – 251
6 – 810	26 – 28
7 – 1255	27 – 108
12 – 470	29 – 34
13 – 605	33 – 40
15 – 750	34 – 200
16 – 550	35 – 222
17 – 1040	41 – 240
18 – 148	43 – 7
19 – 78	no. of teeth right = 25
20 – 81	" " " left = 24
	Tip of snout to tip of lower jaw = 140

ant.-post. length of hump = 111
notch of flukes = 42 deep
snout to corner of mouth = 510
penis sheath (crease) = 88
greatest ant.-post. breadth of flukes is = 161
width of peduncle at flukes insertion = 50

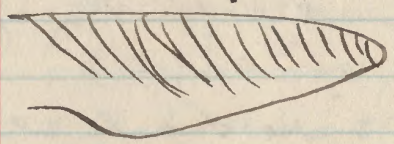
Finback (Very young)

No 38 ♀ July 6-08 Kyuquot B.C.

This whale had not been blown up and consequently lay at the buoy under water all night. Whale boat came on the ship the next day. The whole breast & belly was almost completely eaten away by sharks so that it was impossible to get color or external details of this part.

Color Top of head left side dark slate-blue edge of rostrum right side is light blue gray. Back & upper sides to dorsal fin is dark slate - sides of peduncle from dorsal back to flukes is light blue gray - ~~in the~~ going backward from d. fin the blue gray by the side comes farther & further down toward median line but never quite reaching it. Left ramus dark slate like head - Right ramus light blue gray as is right side throat - central portion of body from chin to flukes white - the white gets narrower & narrower in median line as it goes backward. The lower half of sides from fin to anus, white, Outsides of throat from corner of mouth back bottoms of furrows are dark & folds are blue white. Rest of furrows on breast & back are white like folds - Sides of peduncle have same "skunk-like" markings as were found on No. 34

Pectorals Above ground color is same as back – ant. edge white – above fin is diagonally streaked with fine lighter lines not quite touching posterior edge. Below fin is cream white – ~~[illegible]~~ posteriorly fin is lined with light gray



Dorsal Fin is just like no 34 (see plate)

Tongue above slate blue – below salmon color

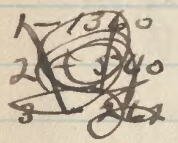
Flukes below has the central position very light pink marbled with bluish – The tip ant & post. edges are slate lined with lighter color for about 6 inches from edges

Below – white portion right side is 7 7/ long pretty white except very post. part where they are all light gray

2 inside left rays are white – right slate

This Fluke was not blown up at all

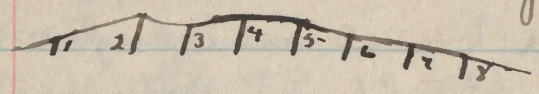
Osteology no 38



15 pr ribs

1st chevron small & not joined distally but complete – 2nd high – 3rd a little lower than 2nd & 4th & 5th same height as 2nd others get smaller gradually – there were 16 chevrons in this series & it

looks like this in position



Vertebrae C_7 D_{15} L_{15} Ca_{26} = 63 same

Skull Length straight = 311
Breadth (squamosal) = 155

Jaw Length straight = 306
" curved = 315

1 = 1360	12 — 405	24 — 150
2 = 560	13 — 450	25 — 152
3 — 262	15 — 650	26 — 16
4 — 326	16 — 360	27 — 70
5 — 225	17 — 924	28 — 26
6 — 440	18 — 167	29 — 25
7 — 880	19 — 162	30 — 5
8 — 63	20 — 36	31 — 17
9 — 6	21 — 27	37 — 13
11 — 3	22 — 280	38 — 257
	23 — 70	39 — 58
		41 — 130
		42 — 21

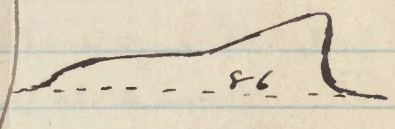
Humpback Calf No 39-9 July 11-08 - Kyuquot B.C.

Color. Considerable white in streaks on median line of throat + breast + fins - white spot between fins - many heavy white spots + circles on right rami "pepper + salt" from vulva to flukes - back top of head + tubes black - ~~H~~

Hump of dorsal fin is 86 mm ant. post. length - back highly crenulated - Blubber very fat. Baleen variety dark gray - ant. portion + the rami

longitudinal central band are light gray.

1 – 870	11 – 18	23 – 81	42 – 26
2 – 560	12 – 235	26 – 18	43 – 18
3 – 198	13 – 258	27 – 65	
4 – 237	14 – 267	33 – 6	
5 – 154	15 – 400	34 – 72	
6 – 320	16 – 297	35 – 164	
7 – 573	17 – 570	36 – 12	
8 – 43	18 – 234	37 – 13	
9 – 15	19 – 265	38 – 191	
10 – 7	20 – 74	39 – 50	
	21 – 14	40 – 103	



Sulphur bottom

No 40 ♂ July 13-08 Kyuquot B.C.

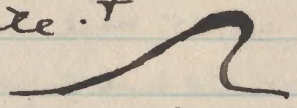
A light white – top of head to ear dark slate – from ear to flukes back + upper sides all solid light blue-gray – lower sides from tip of pectoral laid back to dorsal fin is light blue gray marked with darker gray – from dorsal back to flukes, the whole of the peduncle except the very top + bottom edges are solid light color – the upper + lower edges are darker gray – Below chin lips throat to opposite eye are slate like head – from eye to navel a blue gray – the furrows on this part are marked with many dove colored markings occasionally a white one is thrown in but mostly dove colored – spots of dove color come down + meet between navel ~~+ penis~~ – a little white about penis to anus on ventral line of body; in a number of places where the markings are thickest on the folds, just below

+ back of fin, the bottoms of the furrows are faintly in spots.

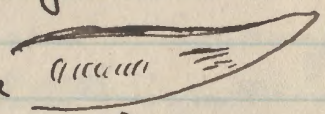
Pectoral left below white with a very few grayish markings on distal third. Above gray brown at insertion then slate & distally whitish – ant. & post. edges ~~[illegible]~~ of distal third is whitish.

Flukes above color of peduncle marked with white lines – below slate like head with a few lighter lines in one or two patches.

Dorsal fin Sides for whole ant. post. length at base are white shading into darker at upper half – tip slate.+



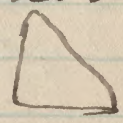
Pectoral Right above like left – below white – on the proximal half in the median line ~~in the median line~~ are two large masses or spots of fine gray lines



& hence back rami have the upper halves bluish-white & lower half slate!

Baleen + roof of mouth black – bristles very thick tongue blue-slate –

28 pairs on ventral surface 7 on left side top of head – 18 sums to baleen ( ) The lobe of the flukes of this whale is a triangle

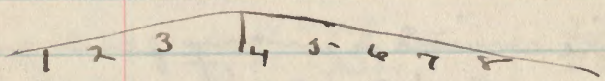


the ant-edge is straight, the posterior slants rapidly toward the tip to meet the anterior.

Osteology

18½ chevrons in series – 4th chevron highest

Sternum as high – 1st free distally
the last chevron is
represented by only
one lamina on the right side



C 7 D 14 L 16 Ca 28 = 65 sure

14 pro. ribs – the last short pair which is usually found were lacking ~~[illegible]~~; the last pair of ribs whole were long.

Shell Length: 5·45 cent
Breadth: 2·50 "

Jaw Straight = 5·20 "
curved = 5·45 "

Scapula Left Height = 8·75 mil
Breadth = 13·70 "
" glenoid fossa = 3·20 mil
Length acromion (median) = 4·40 "
" " (lower edge) = 4·50 "
" coracoid " " = 1·80 "

The superscapular border is flattened in the central portion + dips sharply posteriorly to the glenoid edge. Anteriorly the dip to the coracoid edge is gradual. The ridges radiating upward from the bottom on the inner surface are indistinct except for one or two. The outer surface presents two great concavities on either side of a vertical median ridge – here the scapula is so thin that the light shows thru. The acromion projects downward slightly + is strongly curved inward. The coracoid projects strongly inward + downward.

1 – 2225	11 – 23	27 – 99
2 – 1030	12 – 635	33 – 13
3 – 4651	13 – 786	34 – 151
4 – 580	15 – 1008	35 – 261 (?)
5 – 400	16 – 525	41 – 183
6 – 765	21 – 19	42 – 76
7 – 1690	22 – 467	
8 – 122	23 – 114	
9 – 18	24 – 235	
10 – 10	25 – 254	
	26 – 24	

Humpback Foetus No 41 ♂ July 08 Kyuquot B.C.
Mother was 46 feet long.
5 hulas from blowhole to summit top of head
8 " edge of rostrum left side (alternately in a double row)
9 " " " " " " " " " " "
22 total
6 hulas on left ramus of mandible
5 " " right " " "
The coracoid process of the scapula points inward. The humerus is convex on the anterior surface & concave on the inner. A careful measurement of the left pectoral of this foetus yields the following rather surprising formula
metacarpals 4
phalanges $I_2\ II_6\ III_5\ IV_2$
These measurements are in millimeters.

1 – 1540 mm	[illegible]	27 – 120
2 – 970	13 – 515	28 – 40
3 – 360	14 – 659	29 – 36
4 – 455	16 – 470	30 – 10
5 – 280	17 – 970	31 – 43
6 – 610	19 – 415	33 – 5
7 – 1100	20 – 110	34 – 110
8 – 95	21 – 35	35 – 255
9 – 29	22 – 320	41 – 180
10 – 15	23 – 140	42 – 35
11 – 1	24 – 275	43 – 23
12 – 398	25 – 275	

No. 43 ♂ July 18-08 Kyuquot B.C. Sulphurbottom

Color Head slate - back & upper sides to flukes almost solid light blue-gray broken in only one or two ~~places~~ small patches by ~~the~~ darker gray - All the peduncle is light color excepting a few darker markings near ventral line. Many white flecks & spots on peds & sides of belly from insertion of fin backward diagonally to navel - white spot on navel - the white markings are mixed with gray - only one or two reach the mid-ventral line.

Fin below white - above slate with many of the light body markings for whole length of fin

Flukes below very light gray lined with white - in the central portion of the distal 1/3 the white ~~bases~~ predominates.

1 - 2385	13 - 815
2 - 1010	15 - 1050
3 - 510	21 - 19
4 - 635	27 - 116
5 - 460	42 - 39
6 - 805	
7 - 1810	
8 - 128	
9 - 13	
10 - 11	
11 - 1	
12 - 650	

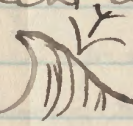
no. 44 ♂ July 20-'08 Kyuquot B.C. Delphinapterus

Color Head to eye light slate - eye to ear small fine spots of light - ear to flukes back & upper sides almost solid light bluegray - only a few darker markings - Throat light slate like head - from fin insertion back are many dove colored markings on folds with now & then a white one (one or two of these dove colored are somewhat)
The markings on folds seem to take 2 distinct areas - one from root of fin downward & backward along reaching the median line - the 2nd from opposite the tip of the fin downward & backward along edges of the folds to navel - spots do not quite meet between navel & penis - There are many of the "heart like" markings on this whole (all the peduncle to forward to opp. navel) same as there are the Finbacks
Lower sides of peduncle are like upper only having a very few darker markings near ventral line - white patch on navel - & crease

Pectoral Right below is white - many fine gray markings on the distal half - above all dark slate with a few of the gray body markings. Tip seems to have been injured - it is very narrow & sharply recurved. Left fin is like right

Flukes Above light slate like head finely washed & lined with broken light gray - post edge dark slate - Below flukes are white

so thickly lined with gray as to give the whole general effect as light gray — the front edge is solid light blue gray — the tips of both lobes have been injured & are irregular — look as tho' they had been chewed off.

Dorsal fin is white at anterior base & sides — farther back the white shades to grayish & then to slate at tip — the whole fin is lined with fine lines like this — tip is solid color & outlined  ant.-post. length of dorsal is 78 (as closely as can be determined) The light lines slant on the very center of the anterior edge & sweep upward & backward on either side from the median line.

Fins length = 188 Circumfence at base = 91

Five creases run out of corner of mouth

Center of eye is 274 from ant. median of fin — The end of the longest crease which runs up on left ramus is 185. from anterior end of eye

1 — 2325.	15 — 1028	39 — 120
2 — 1000	16 — 535	41 — 214
3 — 520	17 — 1520	42 — 44
4 — 642	18 — 364	43 — 66
5 — 475	20 — 80	
6 — 810	21 — 21	
7 — 1790	22 — 540	
8 — 137	24 — 265	
9 — 22	26 — 275	
10 — 10	27 — 118	
11 — 1	33 — 19	
12 — 650	35 — 373	
13 — 800	38 — 500	

Leaving Kyuquot B.C. on July 24 I proceeded by boat to Alberni B.C. which is in the center of Vancouver Is. Since I reached Alberni in the evening it was necessary to stay all night there, & in the morning in company with a young travelling salesman, I took an auto for Nanaimo a distance of 60 miles. The ride is one of the most beautiful I have ever taken. The road winds in & out among magnificent fir trees which reach a height of 200 feet in many places, gradually ascending meanwhile till near summit Lake it is over 500 feet above sea level. I reached Nanaimo at 8.15 p.m. just in time to catch the train for Victoria arriving there at 6.30 p.m. After spending a few days getting my stuff packed & shipping negatives & specimens to New York, I left Victoria for Seattle on Aug. ~~28~~ 30 & spent the day & night in Seattle leaving at noon on Aug 1st, Saturday for Juneau Alaska, on board the S.S. "City of Seattle" I met several college fellows with their wives, mostly mining engineers, bound for Alaska points, & we formed a jolly party. We touched at Prince Rupert B.C., Fort Wrangel, Alaska, Ketchican, Petersburough, Douglas City, Treadwell, & reached Juneau at 9.30 on

the morning of Aug 4th. Fortunately I found that Mr. Street was in town, & I soon found him. We hunted together, & then ran over to Treadwell in the launch, where we had a chance to go thro' the famous mining works. ~~The evening we spent pleasantly at~~ The afternoon was half gone when we returned, & I called on Gov. Hoggatt at four o'clock. The Governor is a very pleasant man, & after an hours call I went back to the Hotel, for dinner. The evening Mr. Street & I spent pleasantly at the home of Judge Folsom of Juneau.

On the next morning at 3 P. M. we left for the whaling station at the south end of Admiralty Is. in Murder's Cove. The day was cold & rainy & in the evening a heavy fog settled down. As usual a part of the engine broke & we were delayed several hours when we were just fifty miles from the station. We finally got under way but had a nasty time as the wind from the floating icebergs was cutting & the rain & fog cold. However after considerable difficulty we got to the station at 11.30 P. M. & were soon

having a lunch.

No. 45 Finback ♀ Aug. 8-'08 Tyee, Alaska

Above Top of head, left side & back ~~[illegible]~~ to flukes is neutral tint - upper sides back as far as opposite vulva are like back, grading into the white of ~~[illegible]~~ belly gradually - The sides of the peduncle shade from the neutral tint of the middorsal region into a light gray with a shade of bluish in it

Below white left side, from snout to navel dark - the upper portion of the left side has both folds & furrows dark slate - the lower half to mid-ventral line has folds light slate & furrows dark.

The gray of the sides ~~of the peduncle~~ comes down farther & farther toward the mid ventral line as the flukes are approached, ~~till~~ so that from anus to flukes only a narrow band of white two or three inches wide is left on the very mid-ventral line. From insertion of fin & a little backward, two white areas extend downward & backward to shade of belly - very distinct - A band of the light gray of the sides, about three feet wide, runs ~~from~~ across belly the post. edge of band is at navel - the band in the very central line is whitish - From navel to anus the belly is pure white - Right side edge of rostrum is blue gray grading into darker

up to median line, (but not so dark as on left side). This lighter slate extends back as far as opposite eye — it then grades into the neutral tint of the back. From corner of mouth to tip right ramus is light blue gray — the folds of all upper half of right side blue gray + furrows ~~[illegible]~~ slate — the lower half of right side has folds pure white + furrows ~~[illegible]~~ flesh pink. This white of the folds extend way ~~[illegible]~~ back to the gray band across belly in front of navel.

Pectorals Below white lined with fine blue gray in no regular pattern — Above dark slate like head — ant. edge white.

Flukes above color of back — below white in central portion finely lined with bluish gray running ant-post + curving inward like those on Sei fluke bottom tail — both ant + post. edge + a little way toward center below is slate blue —

Tongue is light purple below + slate blue above — Inside left ramus has upper half light gray + lower half white —

Baleen — Bristles of baleen are ~~[illegible]~~ dirty white — white portion of right side is 93 long — there are 114 plates in white portion. Baleen figure 19 from sw

Dorsal Fin is slate like back — ~~[illegible]~~ & fades like others.

Same "knot-like" markings on sides of

peduncle as on the other Finbacks.

External ~~Characters~~ Measurements ~~Below~~ begin

1 – 1805	13 – 530	35 – 300
2 – 775	14 – 560	36 – 38
3 – 380	15 – 810	37 – 30
4 – 465	16 – 420	38 – 370
5 – 330	17 – 1200	39 – 80
6 – 600	18 – 181	40 – 32
7 – 1385	20 – 53	41 – 162
8 – 86	21 – 39	42 – 32
9 – 16	23 – 89	43 – 72
10 – 8	26 – 22	
11 – 7	33 – 27	
12 – 500	34 – 109	

Greatest breadth and. fort of flukes = 102
Depth notch " " = 19
Length white portion of baleen row = 93
Number plates in " " " " = 114
Length fin (tip to fort-mart) = 141

No 46 ♂ Aug 8 – '08 Finback Tyee, Alaska.

Color Left side top of head + back ~~all slate~~ + down to level of fin slate or neutral tint back to dorsal fin – from dorsal fin to flukes only the top edge of peduncle is neutral – Below left side from fin to mid ventral line has furrows all dark – from fin half way to center line folds are slate – rest of folds to mid-ventral line are white – the change from slate to white on the folds is gradual – From insertion of fin the two usual areas of white extend forward + backward (same on both sides) Right ~~side~~ half top of head is light bluish ~~slate~~ gray which extends above to blowholes, backward to opposite ear + downward to a little below level of eye – the edge + anterior portion of ~~side~~ rostrum is very light – rest of back + down to ~~down~~ level of fin is neutral tint like other side – Right ramus is light blue

gray – throat, breast + belly from mid-ventral line to level with fin is white – furrows all dark from fin half way to central line of body – rest of furrows to center line are flesh color – the only dark folds on this side are from fin to corner of mouth + four or five folds down. The ~~white~~ gray of the upper sides comes down ~~forward~~ to a line drawn from tip of fin laid back to opposite anus – below this line all is pure white – From anus back to fluke the blue gray of the sides of peduncle comes down except just in median line. Peduncle + side has "hurt like" markings.

Flukes like head above – below all white except for narrow margins of slate at both edges

External Characters 21 white hairs in 2 vertical rows on symphysis like an Sneffleur bottom – 8 hairs left side top of head from opposite blow hole to snout – center of eye is 22 behind corner of mouth (mouth pinched wide open)

1 – 1700	16 – 415	41 – 148
2 – 795	17 – 1136	42 – 26
3 – 340	19 – 177	43 – 68
4 – 420	20 – 50	Length fin (tip to posterior) = 138
5 – 304	21 – 35	Depth notch of flukes = 16
6 – 555	23 – 81	
8 – 79	24 – 20	
9 – 12	27 – 82	
10 – 9	28 – 40	
11 – 2	29 – 40	
12 – 470	30 – 5	
13 – 600	31 – 24	
15 – 765	33 – 25	

No. 47 ♀ Aug. 10 Tyee, Alaska Finback

Color Right side top of head is light slate grading into white on ant. edge – light slate color extends back as far as opposite eye + down to eye; up to blowholes – rest of back + sides above level of fin to dorsal fin ~~back opposite eye is all white~~ is neutral or slate color – fin dorsal to flukes top of peduncle is same color – sides below level of fin from fin to back to vulva is pure white like belly – from vulva back the sides of the peduncle are gray shading into the white of the median line – Right ramus white at tip, shading back into very light gray – the edge of lip is slate. Seven folds from fin downward are light slate + furrows dark – rest of folds to mid ventral line are white partly with dark furrows + partly white furrows – 20 ~~folds~~ furrows altogether from fin down are dark. The arms of white are well marked. Left side has top of head neutral like back – ramus + lips neutral. The furrows of the entire left side to mid ventral line are dark – Thirteen folds from fin down are slate – the remainder shade from slate to pure white near center – white "arms" well marked. Many "knuckle" markings on sides + peduncle.

Pectoral Left below is white for the proximal 2/3 distal 1/3 (except ant. edge) is dark gray lined

with lighter. Above fin is like back – 6 shallow creases run up over fin at base 1/3 ~~that~~ way to ant. edge.

Flukes above slate – below white in central portion – wide margin posteriorly below is slate gray – narrow margin ~~of~~ anterior edge is gray.

Dorsal fin is slate like back – very high & falcate & notched

29 hairs 2 ant. long on symphysis in two vertical rows almost parallel like this ( ) – The posterior end of sequela lies lower than anterior end when in position – The under edge of the rostrum right side is pure white for the length of white portion of baleen – rest is slate.

1 – 7010	26 – 24
2 – 830	27 – 104
3 – 470	33 – 15 –
4 – 518	36 – 43
5 – 380	37 – 32
6 – 705	41 – 180
7 – 1550	42 – 40
8 – 99	43 – 56
9 – 13	
10 – 9	
11 – 10	
12 – 550	
13 – 560	
14 – 600	
15 – 910	
16 – 460	
17 – 1360	
18 – 176	
20 – 65	
21 – 45	
23 – 94	

Length white portion of baleen = 116

Depth notch of flukes = 20

Length of dorsal from lower edge symphysis = 89

Tip of snout to beginning of baleen = 18

Pectoral tip to ant. insertion = 248 (exact fin was pulled out at right angle to body)

No 48 Humpback ♀ Aug 11-08 Tyee Alaska
This whale contained a foetus 157 long
Color Top of head back sides + belly black - belly has a few fine white specks - sides of throat + breast black - in median line there are streaks + splashes of white running to a little back of fins - the same spots between fins as in others - a few circles on chin + soft rammus - Flukes below black at insertion + rest white flecked + dotted with white.

1 - 1410	13 - 365	30 - 7
3 - 340	14 - 390	31 - 32
5 - 270	15 - 575	33 - 7
6 - 535	19 - 427	34 - 126
7 - 930	20 - 114	36 - 18
8 - 63	21 - 25	37 - 34
9 - 19	23 - 104	43 - 26
10 - 9	26 - 23	
11 - 05	28 - 59	Depth notch of flukes = 26
12 - 340	29 - 59	

No 49 Finback ♀ Aug 14-08 Tyee Alaska
Color Right Top of head right side, ~~[illegible]~~ light slate gray - this light color extends up as far as blowholes, backward to opposite ear + then downward + backward to the region immediately above fin + for varied lengths of fin itself. A very narrow band of dark (neutral tint) runs forward + downward from ~~[illegible]~~ mid-dorsal region to eye - All back + upper sides to the level of fin + as far back as tip of fin (laid back) are neutral tint ~~[illegible]~~ Rest of back to flukes is light slate,

which grades into light French gray on the sides. Right ramus white except near corner of mouth where it grades into light bluish gray - all of the folds between the fins right side are white & 17 furrows from fin down are dark - remaining furrows to mid-ventral line are pink - as far back as vulva the white of the belly extends up sides as far as the level of the fins; from vulva back to flukes the ~~bel~~ light French gray of the sides comes further & further down gradually excluding the white except near mid-ventral portion. There is a little more of this mid-ventral white than usual as the gray of the sides does not come down so far as on the other Finbacks I have seen. All over the peduncle are many of the usual "spot-like" markings.

Left side top of head is neutral tint - back & upper parts to flukes like right side. Left ramus neutral - side of throat from symphysis back to insertion of fin has the folds of the upper portion neutral shading into the white folds of the lower portion - All the furrows of this (left) side are dark except three or four near the mid-ventral line which are ~~dark~~ pink - From insertion of fin back all folds are white.

Two prolongations of the gray of the upper

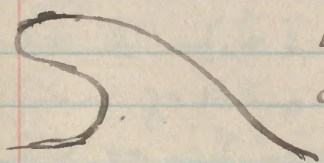
sides are sent down + backward from a little back of fin in mention – Since this whale has the whole breast between fins white the arms "of color are the dark color with the light + not the light into the dark as usual.

Pectoral Left side is mottled white – below white faintly shaded with black at tip + posterior edge of anterior 1/3

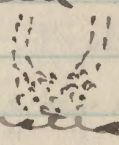
Right fin above partakes of the light color of the right side of body

Flukes below white except for a very narrow posterior edge of blue slate about 2 inches wide – on right lobe near posterior edge are a few dashes of blue-slate

External Characters dorsal fin is very falcate – it is like back in color (light ventral)



47 white hairs on symphysis arranged in two parallel double rows at top which coalesce at bottom + become scattered



Baleen white posterior 120 long – bristles soiled white

1 – 1901	12 – 540	29 – 48
2 – 900	13 – 570	30 – 6
3 – 3951	14 – 598	31 – 25
4 – 490	15 – 850	34 – 107
5 – 360	16 – 465	36 – 40
6 – 635	17 – 1280	37 – 31
7 – 1463	19 – 246	38 – 390
8 – 87	20 – 58	39 – 85
9 – 18	21 – 33	41 – 159 length fin (post. mid. to tip) = 175
10 – 10	23 – 96	42 – 39
11 – 9	27 – 82	43 – 68
	28 – 51	

Depth notch of flukes = 15

No. 50 ♂ Finback Aug 14-'08 Tyee, Alaska.

Color Left side tip of head + back as far as end of fin (laid back) is neutral - rest of back + upper sides light ~~gray~~ slate - this color grades into light gray ~~below~~ on sides - The gray of the sides off ventrally comes down to within 7 ft of navel - rest of belly white. Left rami neutral + from symphysis to fin insertion the upper half of throat is neutral - the lower half of throat has furrows dark to mid-ventral line + folds white - between the fins there are no dark furrows - the remainder to the mid-ventral line are flesh. The white "arms" are well marked + run as follows, breaking the gray of the sides; the anterior one runs from root of the fin downward + backward to a point about five feet in front of navel - the posterior one runs from tip of fin laid back to 2 feet in front of navel - The sides of the peduncle are thickly marked with light lines + "knot-like markings" - The white of the central portion of the whole runs to the very tip of symphysis -

Right side of rostrum to + including fin is light - the narrow dark line running from back to eye was present - Right rami anteriorly white shading into very light gray posteriorly - Right side has upper half of folds very light gray - lower half folds white

furrows are light pink
Flukes below white – post. edge (narrow) neutral
anterior edge shaded with light gray –
Baleen – bristles white except posterior portion
where they are gray –
Roof of mouth light pink –

Osteology

15 pairs Ribs
15 chevrons – the 1st free distally, but anky-
losed posteriorly, to the 2nd which is
high – 4th is highest of the series –
diameter of throat at "swallow" is 19

1 – 1660	12 – 428	28 – 44
2 – 365	13 – 565	29 – 39
4 – 453	15 – 705	30 – 6
5 – 318	16 – 430	31 – 22
6 – 570	17 – 1070	38 – 378
7 – 1290	18 – 214	39 – 74
8 – 88	20 – 49	40 – 369
9 – 13	23 – 70	41 – 154
10 – 9	27 – 89	42 – 24
11 – 1.5		43 – 74

Fin tip to post. insertion = 129
length white portion of baleen = 121
mouth closed not in exact

No. 1 Finback ♂ Aug. 19 – '08 Tyee, Alaska

Color – Rostrum right side + right ~~[illegible]~~ fin
(proximally) + side of back to ~~of~~ tip of fin (laid
back) is light gray – the narrow band runs
from mid-dorsal region forward + down-
ward to eye – rest of back blue gray – Right ventral
white distally shading into light bluish (almost white)
proximally – between fins the 1st five folds (right
side) are light gray + rest are white – 10 furrows
are slate between fins (right side) rest to mid-ventral

line are flesh-colored – from corner of mouth to fin (right side) & folds are blue gray shading into white down – the two arms or prolongations of light gray come down on the sides – the light gray of the peduncle on both sides comes down to within 45° of each other opposite anus

Left side rostrum + back as far as tip of fin (laid back) is light neutral – rest of back to flukes gray shading into the light gray of the sides – peduncle is covered with the "knot-like" markings – Left rostrum + ~~the~~ upper half side of throat is light neutral – Eleven folds, left side, below fin are gray + & furrows darkest of folds white + furrows flesh-colored – from supplying the same number, but are darker than others between fins

Pectorals right above distally is ~~white~~ slate + proximally light gray like right side rostrum – Below ~~at~~ proximally white shaded with gray – distally light gray.

Dorsal fin slate – (see original drawing) + notched to base – 31 cm

Flukes below for proximal 2/3 are white except for the slate margins become wider in the distal portion wholly excluding the white in the distal 1/3 ~~outer~~ + the tip is darker than all –

Baleen - bristles are solid white except in posterior portion where they are gray-black
Eye pupil = 2 cent. in diameter
iris = 4 " " "

Hairs 23 white hairs and epiphyses

1 — 175 sr	11 — 4	26 — 76	41 — 160
2 — 830	12 — 495	27 — 89	42 — 39
3 — 355	13 — 615	28 — 43	43 — 820
4 — 440	15 — 820	29 — 40	length of fins sheath = 106
5 — 325	16 — 406	30 — 4	" white post. of baleen = 89
6 — 580	17 — 1200	31 — 30	93 plates in " " "
7 — 1360	18 — 234	33 — 30	Depth notch = 19
8 — 86	19 — 206	34 — 81	Smooth beginning of
9 — 24	20 — 555	~~35~~	baleen = 16
10 — 10	21 — 26	35 — 325	

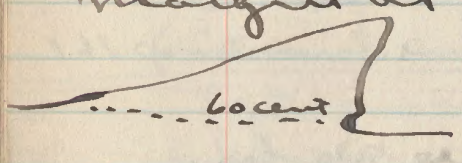
Fin (up to post. insertion) = 161

No 52 Finback ♀ Aug 19-'08 Tyee, Alaska.
Color Right side rostrum + upper sides to flukes are light gray - mid-dorsal region to flukes is neutral tint - a narrow line of neutral runs from mid-dorsal region opposite base of fin forward + downward to eye - upper surface of right fin light gray like head - from fin to fluke the light gray of the upper sides comes down to a blue with the fin + shades off into the white of the lower parts - from vulva to flukes the light gray comes down further + further toward the mid ventral line Right rostrum white distal half shading into light bluish gray proximally - from corner of mouth to fin 18 pleats slate + 20 furrows

between fin all folds are white + 20 furrows dark - from insertion of fin + at tip the two darkness are well marked

Left ramus + upper half of throat is neutral 12 dark folds between insertion of left fin + corner of mouth - all folds below fin are white - nearly all furrows to mid-ventral line are dark -

Dorsal fin is neutral tint + has post-margin as here notched like no. 8



Underparts of whale all white + furrows flesh-colored

External Characters - 41 white hairs of upper lip 8 on right ramus about 10 inches apart + following curve of bone - 11 hairs right side top of head on the low ridge between edge of rostrum + median line - these last hairs are thicker + just beside blowhole. The folds on the throat are 34 mil. in diameter; between fins 42 mil.; the front of navel 70 mil. Navel is 22 cent. long

4 hairs left ramus

1 - 1860	11 - 7	23 - 95	36 - 39
3 - 385	12 - 575	26 - 18	37 - 28
4 - 474	13 - 535	27 - 89	41 - 170
5 - 342	14 - 570	28 - 50	43 - 74
6 - 628	15 - 860	30 - 7	Length sequal angle = 110
7 - 1450	16 - 420	31 - 28	Fin (tip to post. marg.) = 175
8 - 89	17 - 1245	33 - 22	
9 - 16	19 - 209	34 - 130	
10 - 10	21 - 36	35 - 345	

no 53 finback ♂ Aug 20-'08 Tyee Alaska

Color Right side rostrum & upper sides including fin gray - back (median line) is light neutral - Right ramus a very light gray (almost white) From corner of mouth to insertion of fin, nine folds are light gray & 16 furrows are slate - between fins to mid-ventral line four folds are gray & 16 furrows are slate - rest of folds to mid-ventral line are white & furrows flesh color -

Left ramus neutral & upper half of throat - folds below fins to median ventral line all white & all furrows are dark except fine at mid-ventral line.

The usual "hunt lite" markings are very plentiful all over the sides of the whole - Great patches of brown shine all over sides & fin - this shine would give the impression of being pigment, ~~was~~ it is spread so evenly over the body - however the epidermis peels off & below the first layer the usual gray color is to be found

Pectoral Right above light gray & below white shaded with gray.

Flukes - below in central regions are white - a narrow margin & the distal 1/3 of flukes are slate - above flukes are neutral. Snout has been

ungrooved & is blunt & square-ended

1 - 1030	11 - 3	29 - 45	length white portion
2 - 760	12 - 475	30 - 5	of baleen row = 85
3 - 360	13 - 615	31 - 28	
4 - 455		33 - 20	
5 - 325	15 - 790	35 - 375	
6 - 570	16 - 403	38 - 365	
	17 - 1160	39 - 85	
8 - 95	21 - 39	41 - 155	
9 - 18	27 - 90	42 - 35	
10 - 8	28 - 45	43 - 60	

No 54 Humpback ♀ Aug 20 - '08 Tyee Alaska
contained a foetus about 12 metres long
(this was taken)

Color Back, top of head & sides black - belly is black save for a few white flecks along edges of folds - left ramus has only two arbitrary circles ~~about the~~ on it - a few large circles & dashes on the sides of throat anteriorly - circles & dashes in median line of chin throat & breast to pectorals - (this median line of white is narrow) The usual white spot of posterior pectorals in median line of breast - this white spot lies mostly in the two furrows but is very distinct

Pectorals left above black with four white circles - right fin below white with a narrow margin of black round posterior side - a little black at tip also.

Flukes below are black with a few narrow markings + bars of white - above black - notch wide + shallow

Baleen - whitish hair base + tips light brown posteriorly - anteriorly the tips are dirty gray as is central portion of baleen -

External Characters

Anterior insertion of fin is 125 behind corner of mouth
" " " " " 117 " eye
" " " " " 56 " ear

The ear is in a direct line from the posterior corner of eye to the anterior insertion of fin -

Hairs 27 hairs on top of symphysis - 14 tubercles on left ramus all bearing hair - 20 on left side top of head (counting center line) + all bear hair (on the center row of tubercles from blowhole to tip of snout there are ~~20~~ 37)

The distance between the tip of the snout + the tip of the lower jaw is great, but neither seem to have been injured - the chin is prominent

Folds on throat are 90 mil. wide; 140 mil. between fins; 170 mil wide in front of navel. The furrows are 24 cent. deep.

Dorsal fin is black

The pectoral fin of the 2nd "hump" is 19 in thickness

The inside roof of mouth is very light purple – base is slate blue.

There are a few of the "knot" like markings on the sides of this whale –

The pectoral fin of this whale was extended at right angles to the body as measurements of length from tip to ant. & post. insertions are exact.

1 – 1345	11 – 05	23 – 115	42 – 555
2 – 800	12 – 312	27 – 110	43 – 20
3 – 340	13 – 348	33 – 9	greatest breadth of
4 – 405	14 – 362	34 – 80	flukes (ant.-post.): 130
5 – 275	15 – 540	35 – 232	length of fin tip to
6 – 518	16 – 428	36 – 20	post. insert: 390
7 – 905	17 – 850	37 – 30	
8 – 66	19 – 420	38 – 345	
9 – 27	20 – 105	39 – 80	
10 – 8	21 – 24	41 – 122	

No. 55 Finback ♂ Aug. 21 – 07 Tyee, Alaska.

Left side rostrum, & mid-dorsal region as far as tip of fin (laid back) neutral tint – rest of mid-dorsal region to flukes & upper sides to opposite dorsal fins are light neutral – sides of peduncle from dorsal to flukes is light gray – the light gray of the sides slants downward & rapidly from opposite

arms to flukes – opposite arms the gray of the sides are separated in the mid-ventral line by slate white area which is here 80 cent. wide –
Left side has all furrows to mid-ventral line dark slate – so the first 6 folds ~~between~~ below fin insertion are slate – rest white on this side to mid-ventral line – from symphysis to fin 13 folds are dark – the arms of light color from insertion + tip of fin are well marked – the left ramus + upper half of throat are neutral.
Right side retains light gray to opposite ear – remaining portion of upper side including fin to opposite tip of fin (laid back) is gray – rest of back + upper side like left. Right ramus white excepting posteriorly where it is very light gray – 14 furrows are slate + rest flesh-colored – first four folds below fin are dark – 8 folds between corner + mouth + insertion of fin are slate.
Flukes white in central portion having both margins slate + tip also slate – above like head.
Pectorals above left is light neutral –

Below Bristles anteriorly are pure white

+ posterior anchoff is tinged with grayish - The mucous membrane in the roof of the mouth is white tinged with light purple

Hair 27 on sycophysis in vertical rows

Many of the "hair-like" markings are peduncle

1 - 1810	11 - 4	23 - 85	43 - 62
2 - 745	12 - 490	27 - 98	ant-post. length of dorsal
3 - 400	13 - 605	28 - 45	is 90
4 - 490	15 - 780	30 - 6	length fin tip to posterior
5 - 360	16 - 406	31 - 30	mentum = 167
6 - 635	17 - 1175	33 - 20	length white portion
7 - 1400	19 - 190	34 - 175	of balleen = 108
8 - 92	20 - 55	35 - 185	
9 - 15	21 - 40	41 - 178	
10 - 12		42 - 37	

No. 56 Finback ♂ Aug. 21-08 Tyee Alaska (Partly flensed)

Color Right ventrum very light gray - white anteriorly - 11 dark folds between fin to umb - ventral line - "arms" very distinct

Roof of mouth deep pink.

1 - 1870	18 - 238
3 - 405	19 - 212
5 - 370	20 - 515
6 - 650	23 - 95
8 - 89	28 - 49
10 - 10	42 - 44
11 - 3	
12 - 500	greatest breadth of flukes = 112
13 - 600	length fin tip to post. insert = 185
15 - 845	
16 - 550 (?)	
17 - 1245	

no. 57 Finback ♀ Aug 22 - '08 Tyee Alaska.

Color Right ramus light gray - folds between fins white - 19 dark furrows - a dark whale

1 - 1815	11 - 8	27 - 75	42 - 63
2 - 780	12 - 514	28 - 50	43 - 50
3 - 390	13 - 540	29 - 47	Fin to post. insertion: 160
4 - 480	14 - 575	30 - 6	
5 - 335	15 - 838	31 - 30	
6 - 610	16 - 460	33 - 20	
7 - 1365	17 - 1210	36 - 38	
8 - 85	19 - 195	37 - 25	
9 - 19	20 - 53	38 - 375	
10 - 10	21 - 38	39 - 80	
	23 - 89	41 - 170	

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no. 58 ♀ Finback Aug. 22 - 08 Tyee Alaska

Color Left side rostrum + mid-dorsal region to flukes light neutral - upper sides a little lighter - Left ramus dark slate as is the extreme upper portion of throat-side - 20 furrows dark ~~from~~ behind fin to mid-ventral line the remaining 13 are flesh-colored - 7 folds between fin are dark - rest ~~slate~~ white - the arms of dark color are well marked - from arms back the gray of the sides comes well down toward mid-ventral line - Flukes below have only narrow margins of slate - the central part being pure white

Pectorals Left below white - only a

little grayish at tip – above pen is neutral.

1 – 1770	11 – 10	27 – 80	37 – 26
3 – 360	12 – 520	28 – 37	41 – 160
4 – 440	13 – 560	29 – 40	42 – 37
5 – 315	14 – 580	30 – 5	43 – 66
6 – 587	15 – 805	31 – 25	Find (tip to part inner) = 120
7 – 1345	16 – 420	33 – 20	
8 – 82	17 – 1190	34 – 100	
9 – 13	21 – 30	35 – 290	
10 – 5	23 – 83	36 – 37	

That we have with us today the largest mammal that ever existed on the earth or in its waters is perhaps to most of us a fact unknown, yet this is true for not even the ~~largest of the~~ giant reptiles the Dinosaurs, which splashed along the reedy borders of inland seas three ~~thousand~~ million years ago, can match the colossal ~~size~~ bulk of a sulphur bottom whale, great numbers of which are annually taken on both coasts of North America. Altho for more than a thousand years the history of these great mammals has been woven into the sea-faring annals of the maritime nations of the world, yet today their habits & specific relationships are only beginning to be known. It is believed that whales descended from land mammals, for in structure & functions of life they bear the closest resemblance, yet from what particular group they originated is unknown. Like the mammals of the earth, the females of whales give birth to their young alive, nurse them from a considerable time with rich milk from their own bodies, and breathe air by means of lungs. When a whale comes to the surface his first act is to expell the air from his lungs

+ take a fresh inspiration. This air is saturated with water vapour at a high temperature, which when it strikes the cold upper atmosphere condenses at once forming a column of steam or spray, which is sent to a considerable height + thus has arisen the popular idea that the animal actually spouts water from its blowhole or nostrils. Whales are well known to all the oceans of the world from north to south. How do these warm blooded, air breathing animals live in the cold icefilled waters of the Arctic ocean? Nature has provided for them wisely by covering their whole body with a thick layer of fat or "blubber", which acting as a non-conducting layer, prevents the abstraction of the animal heat by the water. On the right whales which live at the edge of the ice this blubber is very thick while in the seas which frequent warmer waters it is correspondingly thinner.

The whales of the world are divided into two natural groups, viz, those having teeth, + those without teeth. Those of the 1st group of which the sperm whale is an example, have long been hunted for the oil + valuable sperm

acetic which they yield; those of the second group, are not only valuable for the horny plates of which the "whalebone" of commerce. This whalebone varies in length from two feet up to twelve feet in different species.

For more than a thousand years the capture of Right whales, those yielding the longest whalebone & the greatest amount of oil, has been an important occupation with both European & American whalers, but only in comparatively recent times has the industry extended to the taking of the Rorquals, those whales with short, coarse whalebone & thin blubber.

These whales were followed in a small boat, harponed & killed with a hand lance. It was at best a dangerous occupation, & skill & courage were required in its prosecution, thus drawing to its ranks the best & most adventurous seamen. However with the gradual extermination of Right whales & the diminution in the numbers of Sperms, attention was turned to the Rorquals, those

species having short coarse whalebone & comparatively thin blubber. Long & lean of body, & built like a racing yacht, the Finbacks & Sulphur bottoms by their great speed defeat the small boat & shoot lay & gaff. Then it was that the Norwegian whalers turned their attention, to perfecting both the methods of capture & the boats & study little steam whaling vessels of today, are the result. These boats are about one hundred feet in length, & carry on the bow a small cannon which shoots a harpoon weighing 110 lbs having an explosive head or point, when a whale is killed it is filled with air, & towed in to the whaling factory.

A whaling station offers to the uninitiated a continual round of surprises. From the time the ~~great animal, weighing perhaps 70 tons~~ ~~is hauled~~ ~~drawn~~ out on the "slip" until the last piece of flesh has been put in the tanks where the oil is extracted, the ease & ~~surprise~~ quickness with which the great carcass weighing perhaps 70 or 80 tons is handled

is almost incredible. ~~The writer~~ Thru' the kindness of the Pacific Whaling Co of Victoria B.C. & the Tyee Co. of Tyee, Alaska, the writer had the opportunity of examining the summer at the summer station & the whaling station ~~where crafts~~

The slip is a long platform at a gentle slope to the water's edge. On this by the aid of a steam winch the whale is hauled, tail first. Almost before the tackles have been slacked & the great body is stationary, the "flensers" are at work making long-sectional incisions from head to tail along the back, sides & breast. A table is fitted to the end of a strip, the winch is started & slowly the great strip of blubber is stripped from the animal's side, leaving the flesh exposed. When one side has been flensed, the body is turned, ~~the other~~ the remaining blubber removed, & the entrails taken out. Then the ~~carcass~~ whole is hauled to the "carcass platform" where the meat is removed, the skeleton disarticulated, & the bones chopped in pieces. Not a particle of the animal goes to waste = the blubber is "tried out" for the oil, the meat & bones are boiled for the

same purpose & then ground up &
dried, making guano or fertilizer. Even
the blood is saved & dried for fertilizer
& the water in which the rubber
is boiled ~~[illegible]~~ makes excellent
glue. So like the proverbial hog of the
Chicago stock yards, ~~not even the~~
where only the squeal is lost, is the
fate of our King of mammals.

While hunting today, while devoid
of much of the danger & excitement attendant
upon the old time pursuit with
hand harpoon & lance, is yet full
of a peculiarly ~~[illegible]~~ good sport.
~~[illegible]~~ The tense silent moments
of waiting ~~[illegible]~~ & expectation
~~[illegible]~~ the excitement of
the ~~[illegible]~~ instant when the great pris-
tly body rounds up right in front
of the bows, the crash of the harpoon
gun, ~~[illegible]~~ would make the final struggle of the
giant animal ~~[illegible]~~ well worth
make it the pulses leap & the
the heart blood run quick. Add to this
the keen pleasure of ~~[illegible]~~
of sleeping with the adipera & tell
me why this is wise & thinks again
with me that better sport could not
be wished. Never will I forget
and to the natural excitement of the chase
of the whale is interesting. Standing

~~no mammal~~

That we have with us today the largest mammal that ever existed on the earth or in its waters is perhaps to most of you a fact unknown. Not even the largest of the ~~Dinosaurs~~ reptiles ~~of prehistoric times~~, the Dinosaurs, which ~~reached a length of 75 feet from the~~ plated along its backs ~~of prehistoric times~~ could equal in size ~~of a~~ the Sulphur bottom whale which ~~are taken~~ annually ~~in the atlantic by the Newfoundland & Norway the whalers along both coasts of the North America~~ both coasts of North America.

~~Since the~~ For more than a thousand years the history of the greatest of mammals has been known to the other nations of the world ~~has been known~~ and yet today their habits & specific relationships are only beginning to be known. With the advent of the harpoon gun & modern methods of capture, the whales of the world ~~have been~~ are being killed at such an alarming ~~rate~~ rate that ~~the threat to wipe~~ their extinction ~~would be a~~ educational institution such as some of our largest museums are awaking to the fact that there is imminent danger of this race of great mammals

that Dinosaurs which flourished many thousands of years ago

see tomorrow's notes

It is hard to believe

being caught part of experience, ~~without~~ with little or their history being known. That a whale is a mammal & not a fish has been known since the time of ~~the early~~ Linnaeus, the great system-dict. Wherein his ~~"Systema Naturae"~~ classified them as such. However few people realize that altho' a whale lives in the water, it yet breathes air by means of lungs & must come to the surface to discharge the air from its lungs & take a fresh inspiration, & any land mammal would do it just in the water. ~~The~~ When a whale comes to the surface of its first act is to discharge the air from its lungs & take a fresh inspiration as a land mammal would do under like circumstances. This air is saturated with water vapor at a high temperature, & when it strikes the cold upper air, immediately condenses forming a column of steam or spray, which is called the spout. What it is that the impression is given that the animal really blows water from out its nostrils

That a whale is a mammal & not a fish has been known since the time of Linnaeus the great systematist, yet how many of us realize that its life & functions are carried on much as in the animals which live on land. The young are born alive, & nursed with rich white milk from the mother's body.

~~The blood of the whale is warm, the young are born alive & nursed with rich white milk from the mother's body.~~

The blood of the whale is warm & for a considerable period the young are born alive & nursed with rich white milk from the mother's body. The whale breathes air by means of lungs, which in essential structure are like those of a horse or cow ~~when~~ ~~below the surface~~ & when below the surface must hold its breath or drown. When a whale comes to the surface its first act is to expel the air from its lungs & take a fresh inspiration. This air is saturated with water vapor at a high temperature which when in strikes the cold upper air condenses at once, forming a column of steam or spray. This "spout" has given rise to the popular impression that a whale blows the water from out its nostrils, which was taken in while feeding.

It is believed that whales originally descended from land mammals for in structure & functions of life

the teeth are very similar, but from what particular group they descended is unknown. ~~Scattering~~ hairs are present & even the rudiments of the hind limbs are ~~found~~ found in some ~~four~~ species

~~Since the advent of the harpoon gun & modern methods of capture~~

For many years the whale has occupied an important place in the commercial history of ~~some~~ sea-faring nations, ~~but since the advent of the harpoon gun & improved methods of capture~~ & its oil & whale bone have been used, for centuries, but since the advent of the harpoon gun & improved methods of capture which ~~it~~ is destined to become a great industry on the coasts of North America. In the old days of the hand ~~lance~~ & harpoon & lance

Since the beginning of the century ~~the whale has occupied~~ oil & whale-bone have occupied an important place in the commercial world ~~but since the advent of the harpoon gun & the~~ the species which yielded the greatest amount of these products, the right whales, ~~was~~ pursued ~~from~~ from Northern

water even with the arctic circle. ~~However with the advent of the~~ + the species with the river bubber + coarser whalebone were not molested. However with the advent of the harpoon gun + improved methods of capture these latter varieties, namely the Finbacks, Humpbacks & Sulphur-bottoms are taken in great numbers + are being ruthlessly slaughtered.

Integuments of whales dangle round even land

with camera ready, he must be ~~ever on the alert~~ ever on the ~~lookout~~ alert for the unexpected, ~~Perhaps~~ for it is this that always happens. Perhaps without a sound or warning a Humpback will burst hurriedly clear out of the water, or ~~though~~ open his great mouth almost at the vessels bow, ~~offering~~ it may be in front, or on either side but you may always be sure that it will come when least expected.

Never will I forget one morning in early May when I was awakened by a knock at the door + the voice

of the watchman saying "It's four o'clock sir, & the whaler is ready to go" I was out of bed in an instant, after pulling on my hip boots almost before I was fully

measurements of whales taken at Tyee Alaska during 1908 – The whales were measured in a straight line from flukes to tip of lower jaw after they were drawn out on the ship. The measurements were furnished me by Mr. Victor H. Street, Manager of the station

March 27	Finback	♂	= 64 feet		
" "	"	♀	= 62	"	
" 28	"	♀	= 63	"	
April 14	"	♀	= 65	"	Contained a foetus 21"
May 4	"	♀	= 69	"	
" 13	"	♀	= 64	"	
" 16	"	♂	= 58	"	10 inches
" "	"	♀	= 67	"	
" 15	Humpback	?	= 41	"	8 "
" 19	"	?	= 38	"	2 "
" 21	Finback	♂	= 60	"	10 "
" "	"	♂	= 60	"	
" "	"	♂	= 67	"	
" 25	Humpback	♂	= 48	"	6 "
" "	"	♂	= 48		
" 29	Finback	♂	= 58	"	
" "	"	♂	= 60	"	3 "
" 30	"	♀	= 63	"	
" "	"	♀	= 63	"	7 "
" "	"	♀	= 62	"	6 "
" 31	"	♀	= 59	"	9 "
" "	"	?	= 59	"	4 "
" "	"	♂	= 63	"	5 "
June 1	"	♂	= 60	"	3 "

June 2-'08	Finback	♀	= 67 feet	6 inches		
" 3 "	"	♀	= 68 "	2	"	
" 3 "	"	♀	= 60 "	8	"	contained foetus
" 6 "	Humpback	♀	= 48 "	4	"	
" 8 "	Finback	♀	= 68 "	2	"	contained foetus 4 ft. 6 in.
" " "	Humpback	♂	= 44 "	7	"	
" 13 "	"	♀	= 38 "	4	"	
" 15 "	Finback	♀	=			
" 19 "	"	♂	= 53 "	10	"	
" " "	"	♀	= 62 "			
" 22 "	"	♀	= 63 "	3	"	
" 23 "	"	?	= 59 "	6	"	
" 25	Humpback	♀	= 49 "	7	"	
" 27	Finback	♀	= 57 "	7	"	
" 29	"	♂	= 63 "	4	"	
July 3-08	"	♀	= 67 "	1	"	
" 9-"	"	♀	= 63 "	3	"	
" " "	"	♀	= 63 "	6	"	
" " "	Humpback	♂	= 39 "			
" 10 "	Finback	♀	= 60 "	4	"	
" "	"	♂	= 66 "	1	"	
" "	"	♂	= 63 "			
" 13	"	♀	= 60 "	2	"	
" "	"	♀	=			73 ft. 10 inches
" "	"	♂	= 60 "			
" "	"	♂	= 60 "			
" 15	"	♂	= 60 "	2	inches	
" "	"	♂	= 60 "			
" "	"	♀	= 60 "	10	"	
" 18	"	♂	= 69 "			
" "	"	♂	= 59 "	4	"	
" 20	"	♂	= 43 "	2	"	

31/32/43

July 20	Humpback	?	= 42 feet	10 inches		
" 21	Finback	♀	= 70	"		
" "	"	♂	= 59	"	7	"
" "	"	♀	= 64	"	5	"
" 25	"	?	= 69	"		
" "	"	♂	= 67	"	3	"
" "	"	♀	= 64	"		
" 30	"	♂	= 59	"		
" "	"	♂	= 61	"	7	"
Aug 1	"	♂	= 59	"	5	"
"	"	♀	= 63	"		
"	"	♂	= 63	"	9	"
"	"	♂	= 64	"	4	"
" 4	"	♀	= 64	"	7	"
" "	"	♀	= 65	"		
" 5	"	♂	= 61	"	4	"
"	"	?	= 63	"	7	"

Sulphur bottom

Skeletal Measurements of specimen prepared by Mr. S. C. Ruck at Kyuquot & now being exhibited by Mr. Geo. Langley & Co at Victoria

Date, March 08 - Kyuquot B. C.

Length 79 ft. 6 in. to tip of lower jaw from notch over back.

The following data Mr. Ruck gave me, & as he prepared the skeleton most carefully it is undoubtedly correct.

Ribs The specimen had 15 ribs left side & 16 right side - the 16th was very short & of course rudimentary.

Vertebrae $C_7\ D_{15}\ L_{15}\ Ca_{26} = 63$

Manus 4 metacarpals

$I_4\ II_7\ III_6\ IV_3$ ("surely correct" Ruck)

The manus of this whale were lost in a fire at the station so a pair from another whale were substituted. This whale had the following formula in both pectorals

$I_4\ II_7\ III_6\ IV_4$ ("surely correct" Ruck)

The ribs of this whale were broken in one or two places so another set were substituted. This whal had 16 prs. and the last pair were long not being rudimentary.

As the skeleton is now exhibited it is as follows:
Everything is from the original whole except – the ribs – the phalanges the dewclaws, & the pelvic bones.

Skull (I took these measures myself) from the cleaned skeleton

Length (condyles to tip straight below) = 600 cent.
Breadth (squamosal) greatest = 290
Length rostrum (from proximal end of maxilla) straight = 500
Length nasals (median) = 35.
" mandible (straight) = 580
" " (curved) = 595.
Depth " at center = 45.
" " " coronoid (straight) = 80
Width orbital process of frontals = 30
" of squamosal = 120
" of rostrum at middle (straight) = 170
Depth of skull vertex to lower edge of pterygoids = 110

Scapula Height = 91 cent Breadth 150 Length acromion (lower edge) = 45 Length coracoid (lower edge) = 251 Breadth g. fossa = 35.
Length skeleton (as mounted) = 2370

Radius length = 105 – breadth distally = 35. Length ulna = 98
breadth ulna distally = 24 Length humerus = 68
Length 1st rib = 150 straight
" " " (curved) = 170
Breadth " " (distally) = 18

Kyuquot

July 16-08 Humpback ♀ Length = 46 feet.

Osteology

Chevrons = 10 - 1st & last small & free distally
+ 3rd highest of series.

C 7 D 14 L 12 Ca 19 = 5-2 Sure

The last very small caudal which is frequently found is represented in this whale only by a mass of cartilage containing no ossification whatever. This whale contained a ♂ foetus No. 41 which was 154 cent. long.

Kyuquot July 16-08 Humpback ♂ Length = 1260

Kyuquot July 16-08 Humpback ♂ Length = 1380

On July 17th at Sechart a ♀ Humpback contained 2 foetal whales each about 18 inches long

In Provincial Museum are two foetal Humpbacks about 8 inches long which were taken from the same mother at Sechart in 1907

Humpback ♀ July 27-08 Kyuquot, B.C.
" Length 1290 " "
1st chevron lacking

Humpback ♂ July 27-08 Kyuquot B.C.
Length = 1350
C 7 D 14 L 11 Ca 21 Sure

There are 10 chevrons

the 3rd is higher of series. 1st very small & free distally - 2nd has a distinct haemal spine & is much larger than 1st - 1st rib is single headed - 2nd has large tubercle & short thin neck & head - 3rd has large tubercle & long neck & head - the largest of the lot - 4th has neck & head & large tubercle about size of no 2. All other ribs are single headed becoming shorter & broader as they go back -

306 laminal of baleen on one side -

July 24-08 Humpback ♂ Kyuquot, B.C.
Length = 1220

Baleen all pure white except for one or two little light gray patches at base. Dr. fin is 30 high & is on a prominent hump - both edges are white

Aug. 8 Tyee, Alaska Finback
Length = 59 ft 11 inches

Aug 10 Tyee Alaska ♂ Finback Length = 61 ft. 10 in
" " " " ♀ Humpback " = 42 ft. 2 "

On Aug 16 a Finback whale was taken at Tyee, Alaska which had a great quantity of herring in its stomach - the herring averaged about 8 inches in length. It was estimated that the stomach contained 3½ to 4 bbls. of the fish. The stomach also contained a few of the shrimp, which is their usual food, in a more or less digested condition. Mr. Street, manager of the station, says that this is the first case of a Finback containing fish of any sort, that has come under his notice.

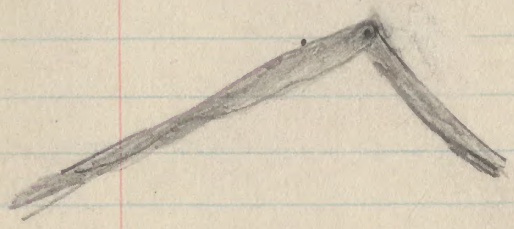
I measured the distance between the laminæ of the baleen in a Finback whale & found the plates to be ½ inch apart - There was practically no variation, all the plates (except the very anterior + posterior ones) being the same distance apart

Capt. G. A. Huff.
Alberni B.C.

Rose Haven
Moorby ds.
of Queen Charlotte

Wm. C. Biddle
78 Reade St.
New York N.Y.
Took up found by
Capt. Hilliard

W. F Osborne
Hotel Margret
Brooklyn



P. M. Cushing
Eve. Mail

Dr Hunting
83 Scarsdale

Fe Roy Robinson
c/o Natl. Sweeper Co
Newark N. J.

Lanehart
Eve. Journal
3 d

M. Herbert Sherwood
N. Y. Tribune (Sunday)
(3 photos.)

Moran
American
3 pics

Wright
World
(4 pictures)

Harvey & Outerbridge
11 B. way
N. Y.

Kenneth Fowler
#1 Fulton Market
New York

Esther Robbins, of
Robbinsdale,
Minn

Mr. Brose
#1 Broadway
Room 153

1.25 dinner

add 2 meters to circ. of Humpback for length 7/200 cent. and 3 meters for length of 1410 cent. This should be added to the circumference of all Humpbacks measured at sea level

Dr. W. N. Copeland
office 438 S. 40th Ave

#28 Forest Home
Oak Park

white & brown
[redacted]

cut glass
tower vase

toodles ~~tea~~

may
National Pk Serv.
NA

puppies population

Second book to Capt Hebbard
" about bulbs
" letter to Kennell
bolo reg. to Fund

Lumber needed for boxing sulphur bottom shelter &

2000 feet	3 X 12	Rough
200 "	3 X 6	"
1000 "	1 X 12	"
400 "	2 X 6	"
50 lbs	6" nails	
50 " &	2½" "	

For Humpback shelter get

1350 ft	2 X 12	R
450 "	2 X 6	"
1000 ft	1 X 12	"
~~400 " 2 X 6~~		"
nails as above		

About 30 bbls. of oil from a Humback
42 gal = 1 bbl.
340 lbs. = 1 "
This includes blubber, meat & bone oil.

A Humpback taken at Tyee Alaska had a great many small Cod fish in its stomach, the largest being about 16 inches long. This statement verified from several persons who saw the whale.