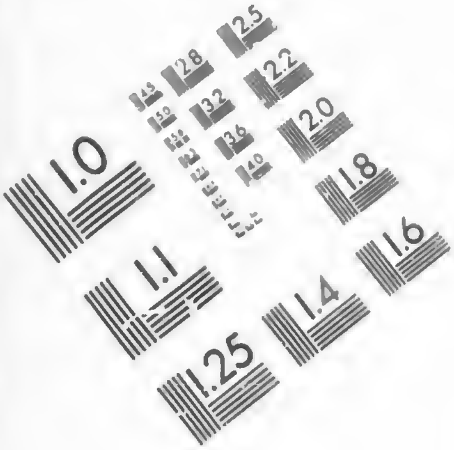

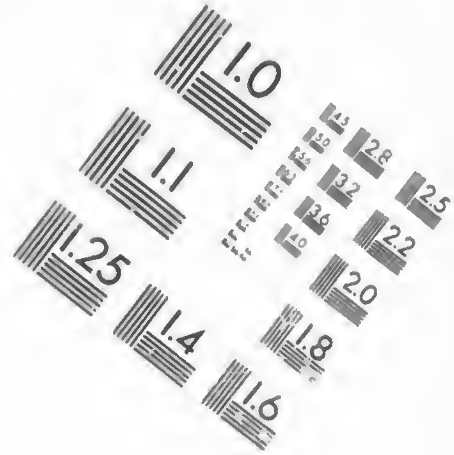

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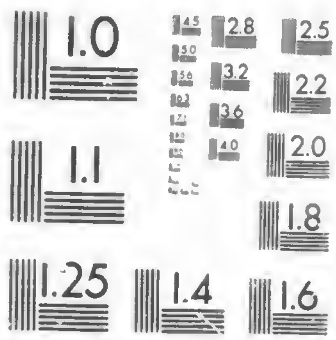

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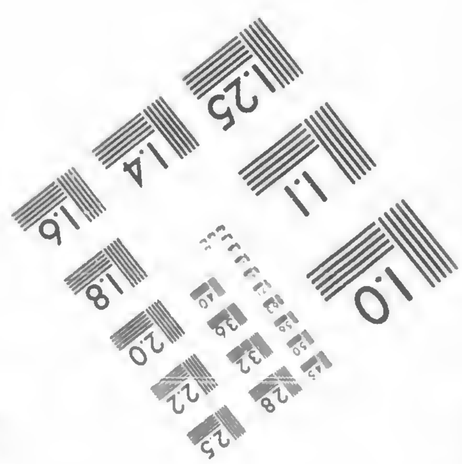

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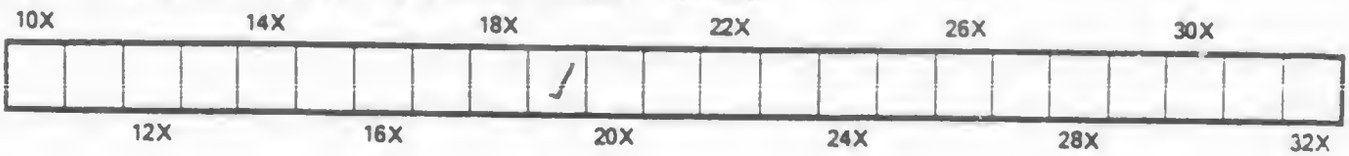

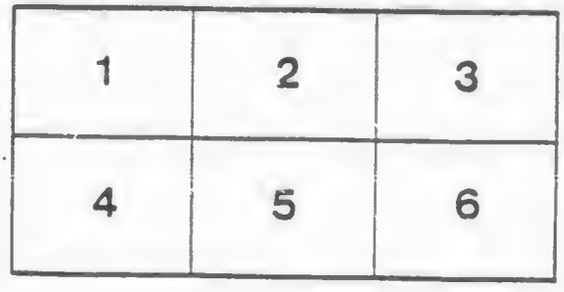

ICE-RIDING PINNIPEDS.

A DESCRIPTION

OF

THE MIGRATION AND PECULIARITIES

OF THE

Phoca Greenlandica and Cystophora Cristata,

WITH

Remarks on the Phoca Barbata, the Vitulina, and Trichechus Rosmarus, on the

NORTH-EAST COAST OF AMERICA.

BY

COMMANDER GEORGE ROBINSON, R.N.,

LATE OF ST. JOHN'S, NEWFOUNDLAND.

LONDON:
J. D. POTTER, 31, POULTRY, E.C.

1897.


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PREFACE.

THE migration and habits of the five varieties of the *pinnipedia* mentioned in this paper, have been collated and arranged from the personal experience of a considerable number of ice masters and captains of whaling and sealing ships, both steamers and sailing vessels, who have been constantly engaged in the pursuit of two of the varieties particularly dwelt upon in this brief sketch.

The remarks on the inception of the migration in Baffin's Bay and possibly Hudson's Bay, have been gathered from the observations of the late Captain Adams, Captain Guy, the Fairweather Brothers, Captain Milne, and Captain Arthur Jackman, of St. John's, Newfoundland. The previously-mentioned experienced ice masters, are connected with the Dundee Sealing and Whaling Company's fleet of steamers, sailing out of St. John's. The movements and habits of the seals on the Labrador coast, the Gulf of St. Lawrence, and the east coast of Newfoundland are entirely drawn from the long experience and constant observation of the Ice masters of Newfoundland. In addition to these experienced men,

the writer must insert the names of Mr. Samuel McNeill of Allik on the Labrador; and Captain R. B. Crocker of Griguet on the northern peninsula, who have materially assisted in the compilation of this paper.

It will be obvious that great differences of opinion must exist with regard to many of the subjects touched upon, extending as they do, over a large area of the eastern seaboard of North America, and dealing with minute particulars of an animal, which may be described as constantly under water, and whose goings have only been arrived at after a century of experience.

The writer takes this opportunity to ask for forbearance and kind consideration, in many of the very difficult and disputed points he has ventured to touch upon, which can only be understood, and appreciated or condemned, by the sealing and whaling communities of St. John's and Dundee.

G. R.

12, Burlington Road,
Redland, Bristol.
September, 1897.

ICE-RIDING PINNIPEDS

ON THE

NORTH-EAST COAST OF AMERICA.

In approaching the subject of the habits and movements of some of the varieties of the hair seal which inhabit the coast of Greenland and Baffin's Bay, it will be evident that the subject cannot be treated in the careful and minute manner that is evidenced in the United States report on the fur seal at the Pribiloff Island in the Behring Sea. The circumstances are very different. In this case our details have to be gathered from the observations of a large number of men, who are untrained in accurate methods of investigating what they see. Many of them, it is true, exhibit considerable skill in noticing peculiarities and details that are most valuable, but these crude obervations cannot be compared with the reports of highly trained scientific men, such as the author of the Pribiloff Island

It is however true that details of movement may in this case exceed the possibilities of observation in the Pacific. The hair seal clings to the coast line in all its wanderings; and when it occasionally leaves the coast, there are facilities for observing its presence, and that is all that is required. It appears to exhibit an anxiety to escape from the ice in the early period of its movements, and there are features in the order of its going, that appear to approach more closely to the migratory habits of birds than any other animal. The *pinnipedia* may and do exhibit an apparent laziness, in lying about the ice, and basking in the sun, but their power of motion is very great, and enables them to traverse long distances in search of a more extensive supply of food than Baffin's Bay and the West Coast of Greenland can provide; at a season when the bay, and all its sounds and feeders from the Arctic Ocean, are beginning to become frost bound, and possibly denuded to a certain extent of that fish life which is so necessary to the *pinnipedia*. The removal of a vast body of seals from these arctic waters between the months of October and June, appear to point in this direction; the food supply for whales and other forms of cetaceans is profuse; *medusæ, clio borealis, pteropod mollusks*, gelatinous life in all its varied forms, is found in abundance in these waters; but it may be questioned if this form of life is sufficient for the seals. That they consume the various forms of *mollusks* is probable, and a small octopus abundant in Davis Strait, the bone of which is the only food found in the stomach of the cod caught off Cape Chidley, in the end of July or August, when it is emaciated to such a degree that the fishermen compare it to a lantern, or living skeleton;—

that the seals are occasionally reduced to this food there can be little doubt. If the fish on which the seals exist, are driven to such dire extremities, is it not probable that the seals will be thin? and they are thin in October when they leave the strait. They are netted off Cape Magford. The cod previously mentioned, are a portion of probably a fugitive school of fish, such as strike into the North Cape, Norway.

The *Trichechus Rosmarus*, or Walrus, may be regarded as a permanent inhabitant of Davis Strait and Baffin's Bay, yet a few float down on the heavy ice in June as far as the Straits of Belleisle and the northern bays of Newfoundland. Previous to 1850 they were reported to be commonly seen in the Gulf of St. Lawrence. The *Phoca Barbata* (bearded seal), or great light blue seal, may be considered in the same light as the *Rosmarus;* they float down the Labrador coast in pairs, or single; never in a group or herd. They may be regarded as a striking illustration of the monogamous habit of the hair seal in these waters, and were noticed but not named by Captain Parry in 1817. This seal is 12 to 14 feet long, and about the same girth; they produce one young seal in June, which is light blue with brown spots. Occasionally they enter the Gulf of St. Lawrence, and some of the northern bays of Newfoundland. Some of the younger members of this variety appear to be led away by the younger members of the *Phoca Greenlandica*, and the *Cystophoid Cristata*, commonly called the "Harp" and "Hood" seals; and are persuaded to join in the annual migration to the south. in which proceeding, neither they or their parents have any lot or inheritance. They are usually

netted in small numbers in the Belleisle Strait and on the east coast of Newfoundland, and have occasionally been taken on the south coast. This is not a commercial seal, the skin is too thick, and the oil not so fine as the Harp or Hood. —The young *Barbata* are light blue with brown spots until they are five years old.

The *Calocephalus Vitulinus*, can hardly be considered an ice-riding seal in the proper acceptation of the term, for they do not usually produce their young on the ice, and that is the strict meaning of "ice-riding pinnipeds." But there is little doubt that some of the northern seals utilise the ice as the nursery *pro tempore*. There is no actual necessity for them to do so, for the young *Vitulina* is not born until June. They may be said to be ubiquitous, but not migratory, although they have been netted with the other seals. They frequent the bays and arms of this extensive coast-line from Davis Strait to the United States. They travel up the brooks, live in the ponds many miles from salt water, and are great poachers. They produce their young in quiet corners in the bays, generally upon smooth flat rocks, or shingle beaches up the brooks. They often produce two, which are beautifully marked in golden buff and brown a few hours after they are born, or when they shed their white coat. Occasionally they are found on the ice with the breeding Harps and their families, many miles to the eastward of the land, but nearly always alone; they have probably drifted down from the north.

The *Phoca Greenlandica*, or Harp seal; so called, on account of a patch of brown hair on the shoulder, supposed to represent a harp. It is five to seven feet in length, with

an indigo blue back, fading into grey, and a white belly. The face is dark grey, and almost a black muzzle, with long whiskers. The eyes are liquid brown and very beautiful. The nails of the claws are a neutral tint with a blue shade. It produces an immature "white coat," at the end of February, or early in March, and changes its coat on the ice, in about 25 days, to pearl grey with brown spots, when it takes the water. The young Harps continue to be spotted until they are five years old, when the grey assumes the deep blue, with the brown patch on the shoulder. The Scotch sealers call them "saddle backs."

This well-known variety inhabits the coast of Greenland, Baffin's Bay, and Hudson's Bay. Nothing is known of the movements of the East Greenland body, on the American coast.

The fur traders and Indians in the vicinity of Hudson's Bay, speak of the large number of seals in this extensive sheet of water, but we are entirely indebted to the experienced ice-masters of the Dundee fleet to supply us with a name. It is the ships which follow the fish into Fox Channel, Boothia Gulf, and other arms, that pass through the Hudson Strait, and notice the seals and their colour, and consider them to be a portion of the Davis Strait variety with which they are so familiar. There is however a great difference of opinion as to whether any of these seals find their way through Hudson Strait in October. Nobody lives on Cape Chidley or Resolution Island to give information. The expeditions that have gone there give a rather forbidding account of the "state of the ice" late in September and early in October. The fast ice makes early, and reaches

out a long distance; the rise and fall of the tides is excessive, the current is strong, and the descriptions of the ice rafting, and jamming in that strait are not pleasant. It is the opinion of very experienced ice-masters, that no large body of seals pass through in October and join the annual migration. However this may be, there is no necessity for the seals to come through Hudson Strait, for Eclipse Sound, ott Inlet, or Home Sound would provide them with egress if there was an inclination to go, or if the ice permitted them. Unfortunately, we have little or no communication with Hudson's Bay. We have no account of these seals, whether they are increasing or diminishing, which is a very important point.

Although we have no certain knowledge of these seals, yet it is reasonable to suppose that they are no mean "ice borers," for Hudson's Bay must be fresher than Davis Strait water, and therefore the ice will be more brittle and difficult to maintain the "bore hole." Not only so, but they always ride "fast ice," *i.e.*, ice connected with the shore. They certainly do not experience the vicissitudes of the seals tossed on the eastern coast of Newfoundland, or driven into the Atlantic; so that probably time has influenced or modified their form to some extent, owing to their comparatively easy life. The Gulf of St. Lawrence Harp seal is a shorter and stouter seal than the eastern body; it always rides "fast ice." In some ways it appears probable that these two very different bodies in some respects, have now, or have had, some connection. The Gulf seal performs a long journey to accomplish the desired end, viz., a more varied and extensive supply of food, and the propagation of its

species. But Hudson Bay, offers ample scope for any reasonable migration. They can reach down to the latitude of Battle Harbour and north to Lancaster Sound, and it is reasonable to suppose that a large body accept the confined situation in the Bay, to the perils of the reaches or the strait.

Against this supposition it may be said, that natural selection, consequent upon a constant approach for centuries to a particular locality where different and favourable conditions obtained, which enabled it to bring forth its young in a comparative "haven of rest" when compared with the storm-tossed *pinniped* of the east coast, are sufficient to account for the modification. Not only so, but the *Cystophoid Cristata* abandons its rough ice proclivities and quietly rides the fast sheet ice of the gulf. Yet experienced ice masters consider the Gulf Hood a large variety, different in habit from the eastern body. If these remarks are productive of additional knowledge of Hudson Bay seals, the object of the writer will be accomplished.

The *Cystophora Cristata*, or hooded seal, may be considered an inhabitant of Greenland, not only from its movements after it has ridden the ice, and fulfilled the purpose of its visit to these waters, but because the older ice masters consider that the *Cristata* has been slowly working round the west coast of Greenland into Davis Strait; that previous to 1850, or about that time, not so many Hoods were noticed in the vicinity of Gotharb, Cumberland Sound, and perhaps Holsteinborg. It is, however, evident that they abound now. The *Cristata* is seven to nine feet in length, and probably the same girth. It is a grey seal covered with

brown blotches and a white belly. The peculiar hood, which has the appearance of black rubber, has been often described. The nails in the claws are yellow. It produces a grey seal with brown spots at the end of February or early in March. It is a wilder and fiercer seal than the *Greenlandica*, which may be said to be gentle, and even affectionate in captivity. In both these varieties the female is only a few inches shorter than the male, but not so stout, and the facial expression is milder.

It is needless to say that the purpose of this paper, is the habit and movement of the *pinnipeds*, and not their structure; yet it will conduce to a better understanding of their movements if it is briefly explained that the seal, like the whale, is provided with a complex arrangement of the respiratory organs, which enables it to store oxygen in sufficient quantities to remain under water a considerable time for a mammal; but at the end of that period (say twenty minutes) the animal must rise to the surface to renew the air, or be drowned. Consequently, the seal will not venture rashly under a large body of heavy sheet or packed ice; it will surround it, if possible. The seal is supposed to travel about twenty miles an hour for a limited period; if we accept this rate, and a possible twenty minutes below the surface, then they might be supposed to venture under, say six miles of ice, but they do not. A body of seals will seldom venture under a body of packed ice, or sheet ice that they cannot break with their head, of more than two miles in width. Yet these "stupid terrestrial mammals" (Cuvier) are enabled to arrive at a just estimate of the breadth of the obstruction, and its density, and act accord-

ingly; but by what process they are able to grasp the situation, is beyond the comprehension of the ice masters.

It will be seen that this cautiousness of the seal, has a considerable bearing upon their possible exit through Hudson Strait, or the sounds, or inlets. In the former "the loud crashes of the ice, as large sheets, six inches in thickness, are reared up on end twenty feet, and dashed resistlessly upon the opposing ice." But this is precisely what takes place between Sheeatica, and New Ferrole point in the Gulf; perhaps these seals or their progenitors, have witnessed "a raft" and understand the consequences. Both positions exhibit a wild war of nature's terrible forces.

In the case of the sounds, or inlets such as Scott or Pond, no such violent commotion takes place, but they freeze at the end of September; only the seals will be able to judge if they can get through. It appears quite reasonable to suppose that a small number may occasionally pass that way. But the circumstances of Hudson's Bay, and the sounds and inlets, are reproduced to a considerable extent in Baffin's Bay, for a very large portion of this inland sea is frozen over, and apparently to such an extent as to render the possibilities of open water, or lanes and cracks in the ice, very limited in extent when compared with great expanse of water, it is only in the centre with lanes extending to the southward about twenty miles off the harbours of Disco and Holsteinborg. The tidal waters of Smith Sound, Jones Sound, and Lancaster Sound appear to exert sufficient influence in mid-winter to move, or well up the lower waters to the surface in the middle of the bay, and afford a limited area of breathing space to a restricted number of seals that

inhabit these waters during the winter, but that is all; the area of open water is insufficient for a tithe of the multitude that leave this bay in September and October. This feature in Baffin's Bay appears to point to a restricted circulation in mid-winter, probably caused by ice obstruction, and all the feeders from the Arctic bearing north and west being contracted in addition. Berg ice probably relieves the straitened circumstances to a certain extent and leaves an open trail, but it is obviously narrow and limited. Beset whalers in early days, and the drift of the Polaris pan, alone prove this open water; but it points to a reason for migration more potent than any insufficient supply of food, and exerts an influence over these animals which reasonably accounts for their southward movement at this period of the year, for Baffin's Bay is rapidly becoming uninhabitable for the vast body pressing south.

The Dundee whaling ships leave Cumberland Sound about the 25th of October, and they notice bodies of seals as they force their way out to the S.S.E. This stream of ice off "Cape Mercy" may be sixty or a hundred miles wide; but beyond this, the ocean is clear of ice from Greenland to the Labrador. But these bodies of seals speak of a movement in progress, the gathering of the multitude has already taken place. The inception of migration must be at an earlier date. The young ice is supposed to make in Baffin's Bay, on or about the 20th of September, according to the season, *i.e.*, there will be a considerable range in the time, between cold and early, or mild and late seasons; and the range is about 25 days, so that in a cold early season the sounds and inlets may catch over on the 8th of September

and in mild on the 2nd of October. It appears very reasonable to suppose, that the seals move to the S.S.W. after passing the body of ice off Cape Walsingham, shortly after the ice begins to make; because they invariably precede a body of ice flowing down the Labrador coast, whose motion is fairly determined, and coincides to a certain extent with the dates previously given, only a month later.

From Cape Walsingham to the entrance of the Belleisle strait is 840 miles, and the seals are supposed to accomplish the journey in about sixty days; but it must not be supposed that they travel in a straight line, for they are come for better fare than Baffin's Bay can provide, and surround all the islands and islets on that extensive coast hunting and fishing. They travel comparatively slowly, perhaps 14 miles a day, but there is a method in their movements. They may be described as percolating through these islands; first (as at Neparktok, Cape Mugford), there will be a few seals passing in a day, about the 25th of October, and the number will increase gradually until the middle or end of November, when the ice arrives and all the nets have to be taken in.

The fishermen describe them as passing along in "little strings," but it is a double one.

The seals have their enemies like other animals, and the shark and narwal are two of them; the bear only reaches them on the ice. It seems as if the Hood seal had kindly come across from Cape Farewell, to look after their weaker brethren and pilot them to their destination; and they certainly do give them the preferential situation, namely,

the inshore, where the best feeding is obtainable; and the sharks and narwal are certainly outside. But when they made their regulations, like the wild geese, man had not become a principal factor, so the shore was quite safe. To-day it is very different, man has decimated the Harp seal, on account of his situation inshore, and the Hood has comparatively gone free. But the law of the seal altereth not; like the geese, they still fly like a V, and the seals carry out their parallel lines. Wherever there is a string of Harps passing to the southward, between October and January, there will be found their fellow travellers, the Hood seal, always a little to the eastward, moving parallel with them: even if the convoy they have travelled six hundred miles to protect, and migrate with, is reduced in numbers to a very skeleton of the hundreds of thousands of Harp seals that moved to the south previous to 1860. This description of the "hand-in-hand" migration of the *Phoca Greenlandica* and the *Cystophora Cristata* may possibly be regarded as treating the subject in a spirit of levity; but such is not the intention; it is a graphic, but true representation of the journey of these two varieties to the Newfoundland banks—one, apparently protecting the other from outside molestation. In the Cabot Strait the *Cristata* assumes the westward, or outside position, and the *Greenlandica*, in to the Newfoundland shore.

The question that arises from this dual line of progression is, whether this peculiarity has been noticed on the East Greenland coast, or in the Antarctic? In the former case considerable light should be thrown on the subject, as the fishery is old; but the possible inhabitants can hardly be

considered as permanent—only transitory fishermen; and this would deprive them of many opportunities of observation. The writer assumes a migration of some description along that coast? The ice masters he has spoken to, have never mentioned the subject of migration. Groups, or bodies of seals, are all that he has heard of. The Antartic bodies of other varieties have been followed by the Dundee fleet, but no particulars have reached the writer.

If this conjunction of the two bodies of seals obtains in other latitudes, it may be considered as a recognised habit; but if on the contrary no such evidence is adduced, then we are compelled to admit the method of "proceeding" is singular to these waters, and may possibly be derived from circumstances which took place previous to the present century, and influenced by climatic changes.

It will be evident that the possibilities of observation are not only frequent in these waters, on account of a resident population, but extended over a century: whilst in other, and wilder ranges of these animals, no such accurate observations of movement, and habit are possible.

In the days of the sailing craft, the seals got a "*close time*" occasionally, when the ships got jammed in the bays, and the young "*white coats*" were fledged and got away; the introduction of steam simply meant certainty of destruction.

In the year, 1844, a Scotchman of the name of Charles McNeill left Kirpon, where he had been fishing and sealing, and came down to a little cove inside Turnavik Island, on the Labrador, called Allik; here he had his seal net on the north point of the cove, and began to look out for the

strings of seals at the latter part of October—all according to the season: if it was cold and early, perhaps the 25th or 1st November; if it was mild, later. But as soon as the "northern slob" came along he had to take in his net, lest the ice should sweep it away.

Now these are extracts from his sealing diary, of the date when the slob came along, and, therefore, the end of the string of seals, for they always precede this ice:—

1844. November 30th.	1853. November 26th.
1845. December 10th.	1854. December 9th
*1846. „ 25th.	1855. „ 9th.
A gap of four years.	1856. „ 15th.
1850. December 14th.	A gap of two years.
1851. „ 19th.	1859. November 24th.
1852. „ 13th.	1860. December 15th.

The writer endeavoured to obtain the next book to 1870. He had to wait nearly a year to get the answer; but it was lost, burnt, or destroyed. So there was no connection with the Newfoundland dates, and unfortunately Mr. Metcalf, of Neparktok Bay, Cape Mugford, kept no diary; consequently a mean epoch had to be adopted.

At this bay *Phoca Greenlandica* were netted in considerable numbers; very few old *Cristata*, but plenty of young ones, two to four years old; and a few *Barbata*, all young.

The year 1846 was exceptional. The slob did not arrive until ten days after 1860, a late date; and it did not appear in a narrow stream a few miles wide, as it is generally noticed, but it swept down in a body that could not be seen over from the look-out at Allik eight hundred feet in height.

If we omit 1846 because it is evident that S.E. winds prevailed in the north, and the ice was pinned into the coast, and stopped, perhaps at Cape Mugford, possibly Cape Dier, the mean epoch will be represented by December 9th, and a fluctuation on either side of twenty days, when all the migrating body have passed to the south. But there are always seals about this coast. As soon as the winter is set in—about the New Year—and the standing ice extends five or six miles to the eastward of Turnavik Island, ending in a straight edge, where the ice is slowly moving to the south: the inhabitants drive out on their commitiks and dogs, and "swatch" (hunt) in the pools and streams, in the ice for seals. They find only *Cristata* or *Barbata*, *no* Harp seals. Occasionally they meet a *Vitulina*, for they apparently like a little ice-hunting; but all these seals are thin. The character of the ice changes nearly every month. About the end of March it would be very rough travelling. The writer never heard of young *Cristata* taken on the ice here; they only ride in scattered spots, and always on the eastern edge, many miles from the standing ice.

The probabilities strongly favour the statement that the Hood seals do cross over from Cape Farewell to join the migrating Harps. It is in the first place their home; and it can be shown that seals shot off Newfoundland, but not killed, were found riding the Farewell ice only three months after. That is to say, they had returned home to shed their coats. Previous to 1864, or before that date, the Newfoundland sealers used a sealing gun, which was charged with "four fingers of powder" and a number of

slugs, called sealing shot. At that time Scotch, Norwegian, and Danish vessels followed the "bladder nose," *i.e. Cristatus*, on the ice extending about 40 miles to the southward of Farewell; and all these men used the bullet, consequently when they killed a seal with newly-cicatrised shot wounds, and the shot inside, there could be little question as to where that seal was shot.

The first, or early narrow stream of seals arrive off Battle Harbour about the middle or end of November according to the season, and continue passing along until about the New Year, when the ice "comes along." But this latter date will satisfy the requirements of Cape Race, and possibly Banquereux. It may be explained in this way:—On January 6th, 1881, seals were noticed off St. John's. On January 2nd the southern tail of the "northern slob" was passing Battle Harbour on the Labrador, and the seals always precede this ice. The difference in date is four days; the average speed of the ice is 13·8 miles per day. Therefore. 13·8 multiplied by 4 gives the position of the ice southward of Battle Harbour, or about Goose Cape, Hare Bay, on January 6th. In other words, that dual line "of little strings of seals" extended over 220 miles of coast line on that day. In the same way all the [illegible] have passed Belleisle by January 1st, with a variation in date of twenty days. The entrance to the Strait of Belleisle is an important point in the migration, for here the "short stout" Harps turn in to the westward, following the Arctic current along the Labrador shore of the Strait, and some of the Gulf Hoods take the middle, as in duty bound, parallel with the Harps.

That little word some, indicates here a doubtfulness, not of their presence, but the question, should the "some" be rendered "all"? It is a mooted point.

The harbours of Chateau Bay, Forteau, Lance à Loup, and Bonne Espéranee, speak of a period previous to the present. A time in the early part of the last century, when the old Breton fishermen came here to capture le morruha, and were surprised to find the young seals minutely examining everything on the surface or below the water; they found they had an ear for music, and would rise to a whistle, so they called them badiner de la mère. It was a fatal curiosity that incited these fishermen to contrive something, not only to amuse, but to entrap the simple phoque. This oblong network box, moored to the bottom, is supported on the surface by four small casks and five or seven bladders; it has no cover, but the network door at the end, stretched on a wooden frame, is connected to the shore by a long rope led to a capstan, so that the door can be closed as soon as the seals are inside. It requires skill and constant watching, but large numbers of seals used to be taken in the "seal net." The Harp seal generally becomes dazed by his awkward position, and is usually "meshed" in his endeavours to extricate himself below. The Hood seal, however, is not so easily caught, and often jumps the "head rope," and so escapes: the most natural thing to do, considering it is level with the water. In 1763 the English, the Irish, and the Jerseyman succeeded the French, and adopted his "seal nets," and ideas of the seal, and also a portion of his language, for they curtailed his pet expression, into bad-la-mère, and the natural transition to "bedlamer" quickly followed. This

is the present name for a young seal, without reference to variety, until they are five years old. It will be almost needless to point out that this "net" embraces the story of the seals, it is the little thread that guides.

The old French name for Cape Bauld was Cape de Grat, "Hen-scratching Point"; but Cape Bauld is severed from the northern peninsula by a narrow channel, and in the fissure is nestled the little harbour and village of Kirpon, a truly wild and curious place. Yet these poor people love their rocky ice-girt home quite as much as some of their forebears loved their Devonshire valleys. It is a rather uncomfortable harbour when the ice is running through the tickle in June.

Forty-four years ago, every salient point in the strait was occupied by "seal nets" in November, and men standing by the capstans, straining their eyes to see the approaching stream of seals. The Harps seemed to daily in strait, the change of living was so marked in this favourite fishing ground. To-day all is changed, experience has taught the seals not to linger or approach the shore, too close. Ruined capstans on the headlands, speak of the past; the nets are few and far between. Competition has reduced the price of oil. Petroleum, and vegetable oils, have taken the place of seal; and so, the skin has become the most valuable part of the animal.

The northern peninsula of Newfoundland, is terminated by a triangular-shaped island, rising steeply to the south in a bold and rugged summit; but jutting out into the Atlantic, as a narrow bill. This is Cape Bauld; one of the most bare, bleak, ice and storm-beaten capes in North America.

This barren point has been in past years, the theatre of a seal fishery, probably unique in its simplicity and exceptional character. It has a history in the early part of this century, no doubt, but it is unwritten; and the circumstances that introduced this brief sketch into this paper, are a remembrance of the past. About fifteen or seventeen years ago, this fishery was in existence; possibly a little is done to-day, but it can only be on a very small scale. The appliances were two small skiffs, several active young men, and the Gulf sheet, and Eastern ice; which may be said to be always swirling round the cape from January to June. The knowledge required by the ice master of Cape Bauld, was "when not to attempt to take the seals." In other words, he had to understand the probable course the ice would take, with every wind that blew: for the direction of the wind modifies, and sometimes arrests, the action of the tides and currents. He had to so arrange the time of departure from the shore, that the turn of the current would bring him back to a reasonable distance from the Cape. The danger was the wind changing in its direction, and sweeping the men and seals into the Atlantic, and the difficulty of rescuing them on an ice-clad ocean is more easy to suppose than describe. It is sufficient to say that many have lost their lives in this way. One of the curious features of the fishery was that three-quarters of the seals obtained were Gulf Harps; although they were derived from ice extending out, either from Point Ferrolle or westward of Shecatica, distant about 87 miles and 120 miles from Cape Bauld. Yet the vicinity of this Cape has always been famous for an inshore patch of eastern seals. These

men do obtain a number of eastern seals; but the steamers get the lion's share. Again, both eastern and western seals are obtained at Cape Bauld, from the Belleisle Strait with a N.W. wind, providing that the wind has been blowing eastward of N.N.E. three or four days previous. To entertain the reason of this would exceed the limits of this paper; but it illustrates the peculiar features of this fishery. The nursery of both varieties of the *Phoca Greenlandica*, and occasionally some of the *Cristata*, are wheeled into the vicinity of Cape Bauld by the combined forces of the wind, the current, and the tide; but the wind preponderates in directive force in March and April, and this is the period for harvesting the seals.

Cape Bauld is said to "split the seals," but it is remarked by the lighthouse keeper of Belleisle, that a large body are often observed passing S.E. of that island, and it is very probable that this represents the eastern stream of *pinnipeds* moving towards the White Islands, Groais Island, Belle Island, Horse Island, and Cape St. John. The island of Belleisle has a prior claim on ice splitting: for 15 or 20 miles N.E. of this island, the stream divides and the western ice is drawn into the Belleisle Strait. The seals follow all the sinuosities of this coast, including White Bay, and seal nets have been constantly used on the salient points; so that the varieties obtained form an excellent guide. From Cape John to Cape Bonavista they continue following the coast line, surrounding all the islands and arms, unless the winter is cold and the "bay slob" filled into the tickles and channels in a solid sheet. But the "seal nets" fail after

Fogo Island is passed, so that accurate information cannot be given.

The old masters of the ice, such as Azariah Munden, Henry Knight, Isaac Bartlett senior, all speak of the seals surrounding the large indentations, such as Trinity and Conception Bays, previous to 1850: which agrees with Captain A. Jackman's theory, that they follow the inshore stream of the Arctic current from Cape Walsingham to Cape Race, and it may be that the "principal factor" in all the modifications of the habit of the seal, has rendered the journey unnecessary, by removing the fish, for the seal has come here to live. At any rate they have long forsaken surrounding these deep bays; they cut across from point to point, and reach Cape Race at an early date of the year. The vessels approaching the coast in January, notice the seals long distances from the land, enjoying their brief holiday. They may be observed on the banks any time after the new year, and it is on this account that many suppose that a body of seals make a straight line from Belleisle to Cape Freels, and on to the banks. The seals are seen on all the southern banks, such as the Green Bank, St. Pierre Bank, Banquereux, and even Sable Island. Many years ago the assistant lighthouse keeper on Sable Island was a Newfoundlander, and familiar with the seals; so it is evident that the Hoods and Harps, reach down to latitude 44° N. as the most southern limit, and always in Arctic water, for the ice is often in the latitude of Cape Race in January.

We have now reached the most perplexing part of the migration, for some of the sealers in the Cabot Strait are of the opinion that a body of seals pass south in January,

or earlier, for it is before the river ice comes down, and it is supposed that they are the seals noticed on Banquereux and Sable Island. And it is also supposed that a body of the Eastern Hoods, having finished their feeding on the banks, pass through the Cabot Strait to ride the ice in the Gulf.

We have nothing to guide us except the presence of the seals, but there is no question on that point.

At a very moderate computation at least a million seals are feeding on these banks for a month every year. To compute the fish they may consume would be trespassing on a different question, but it represents a large voyage if they only consumed three fish a day.

It will be noticed that the seals have been absent from the ice two months and a half, from the end of October to the middle or end of January when there is often ice near the Virgin Rocks. The Harp seal very seldom trespasses on the preserves of the *Vitulina;* they have however been seen catching trout at the mouth of a brook in New World Island, but they never sleep on shore. Yet like other mammals, they must rest; and in the absence of ice, they turn on their back, fold their hands, expand their hind flippers, and sleep with their head thrown back pillowed on the water. There is a close connection between the *Greenlandica* and the *Vitulina;* both produce a white coat, both have eleven tongues; the offspring of both are very helpless for a month, and they often associate, and travel together. We have little knowledge of the *Cristata*, they are an offshore seal, but probably adopt the same sleeping posture as the *Greenlandica* during their absence from the ice.

During the months of January and February, the lighthouse keeper of Cape Race, reports large bodies of seals seen off the Cape, but not often after the middle of February. It is supposed that the seals of the east coast leave for the north early in the month. They have been seen on February 16th, passing across the mouth of Trinity Bay, in a long straggling body two or three miles in length, old and young, with head out of the water, and rushing along at a great pace. But this account must have taken place when the bay was clear of ice, and it is not always so in February. The seals always travel inshore if possible, but they will not approach the coast if the ice is inshore; they appear to travel fast, as they journey north. During cold seasons, with a heavy ice shed and easterly winds, they evidently experience considerable difficulty in reaching north of Fogo Island. Perhaps, they delayed too long on the banks, but in 1889 they probably rode the ice well south of C. Bonavista, for the seal ice came in close to St. John's, on April 2nd and 3rd, and seals were hauled on shore, but this was a remarkable occurrence; it was only a patch however.

The circumstances of the quantity of ice inshore, and the direction of the wind, greatly modify the position where the seals mount the ice to breed. It is a difficult subject to explain.

The two bodies of eastern seals, which travel side by side from Cape Race to Fogo Island, generally reach the entrance to the Belleisle Strait before the 28th of February, for there is a good deal to consider and arrange. In the first place they always ride "free ice," *i.e.* ice in no way connected with the land, but floating down with the Arctic current;

but this first desideratum necessitates their taking particular notice of the position of the ice and the direction of the wind; for if the wind happens to be easterly, and the ice pressed inshore, they will not approach the coast: they will move outside. In the second place, the *Phoca Greenlandica* is an ice-boring seal; they seek for a particular form of ice, in extensive sheets, seldom more than three inches thick, to deposit their young on—that is to say, freshly-made ice, soft and easy to bore. It does not necessarily follow that they always obtain it; there have been seasons when they have mounted ice barely three-quarters of an inch in thickness—ice that would not bear a man; but it is the depth of winter, the seals know that the ice will continue "making" (thickening) for a fortnight or three weeks longer. The Harp seal is a gregarious animal; the mothers all like to be together, close to one another, although there may be 250,000 in a "patch," or a congregation of seals on one sheet of ice several miles in length and breadth. It is generally found that there are two, or even three, "patches" of seals besides a northern patch to be hereinafter mentioned. But during average years there is a difference of opinion as to the presence of the third. Yet there are circumstances in connection with the "seal ice" that induce experienced ice masters to consider that there must be a patch of seals that have long evaded the ships, even if they are all swept away now, with twenty ice-hunting steamers after them. The circumstances are these:—About the middle or end of April ships are constantly seeking about the ice, between 48° and 51° or 52° N., for old or young seals. During their wanderings in a body that is constantly shifting its position, and

not always south, but turning and rolling round as it takes the shore, and perhaps wheels the most southern portion of a large body to the north, these ships occasionally come across ice that has been used for a nursery and forsaken by the young seals as soon as they could swim. An intelligent ice master always takes a very careful survey of this ice, because it has a particular bearing upon the future voyage, and he can always tell if it has been used by Harps or Hoods. So long as ice of this description is occasionally found—for it can only be an accident for a vessel to meet it—so long is there hope for the continuance of the fishery, as it shows that a remnant has escaped; and when it is considered that this particular position on the eastern seaboard of America is the only known retiring place or nursery, of the *Phoca Greenlandica*, it may be considered of some importance.

What does it matter to the *Cristata*, or Hood seal, where it rides? Any rough piece of ice satisfies their wants. They ride the Labrador ice, from Cape Chidley to the Belleisle Strait in scattered patches. Surely five hundred miles of coast is enough for one variety, not to speak of the West Greenland coast. The writer would seriously ask, What were the circumstances that induced a wild, quarrelsome seal like the *Cristata*, to associate with a quiet and a beautiful seal like the *Greenlandica*? The scattered, isolated positions of the families on the ice exhibit their natural habit: they cannot bear the presence of their own species. How is it, that two particular groups of the *Cristata*, cross over from Greenland to accompany the *Greenlandica* in its yearly migration, whilst thousands breed elsewhere, without

the delicate attentions which these two groups exhibit to the *Greenlandica?* Or, is it not reasonable to suppose, that this peculiar companionship of two varieties of the Hair seal—coming from very different situations, one a deep, large Aretic basin, and the other a stormy cape, and a coast wrapped in perpetual ice; for the Hood seal never has been seen to ride Labrador ice to change its coat, it always returns to Cape Farewell;—may not these circumstances be attributed to a slow process such as we are witnessing to-day, a gradual intermingling of the young seals, just as the young *Barbata* follows the migration. Only, in their case the opportunity is past, for the climate of Newfoundland is not suited to the *Barbata*. But has not the climate of Greenland changed in the past nine hundred years? It is still rising out of the water, and exposing a larger surface, to make its own winter of snow and glaciers. Why did the Norsemen call it, what it certainly is not to-day, Greenland? Is it not reasonable to suppose, that in like manner Cape Farewell was not always ice-bound, and therefore unfitted for the habitation of the *Cristata;* that, as the continent rose out of the water, the seal drew down the East Greenland coast in a S.W. direction: and eventually reached Farewell; and a slow but gradual intermingling of the young seals of East Greenland, and West Greenland varieties, induced some of the older members to join in an annual procession of 1,300 miles; and as time went on, the short cut from Farewell to Chidley was initiated, and a larger number crossed over. The ancient ice masters of 1800, noticed their "bladder nose;" and now the remembrance of their absence, in Davis Strait, is all that is left, of a chain of events pro-

ducing a curious feature in the animal kingdom. In brief, there possibly was a time when the *Phoca Greenlandica* migrated alone.

The circumstances surrounding the Harp seal before they mount the ice have been briefly touched upon. The situation may be described as embracing the coast between Cape Bluff on the Labrador, and Cape Bauld, Newfoundland. But it must be remembered that during exceptional seasons many of the seals may not be able to reach as far north, but they make every effort to do so. About the year 1863, a straight edge of ice extended from Round Hill Island to Funk Island; it was a solid jam until a late date. In March 1877 the difficulty was to find any ice in March in the vicinity of the coast. But it only meant a prevalence of N.W. winds. The seals were taken 150 miles to the eastward of Belleisle; there was plenty of ice in the Atlantic, and plenty in the Gulf. On May 3rd S.S. Falcon jammed in Sidney. Showing the very variable character of the body of ice, in different years.

During an average season the seals may mount the ice 30 to 40 miles eastward of Battle Harbour or Belleisle; apparently they ride the ice more northerly during westerly winds, or a light ice shed. Occasionally they must mount in the vicinity of Cape Bluff; and in harder weather 20 to 40 miles off Cape Bauld. Now this refers to the inside patch of Harp seals only. Eastward of the land, say 70 or 90 miles, there is another patch of Harp seals, which are supposed to have a certain directive connection with the inside body, but the exact bearing and distance from that patch may be discreetly left to the ice masters; occasionally

the eastern patch is a long distance off shore. There is, however, one thing quite certain, and that is, that the Hood seals will ride 30 to 50 miles N.E. from the Harp seals, but they will ride rougher ice. Besides these bodies of seals, there is the possibility of a third patch somewhere in the Atlantic, and it is the fervent hope of the writer, that it is not a hypothetic body, but that its position and numbers may never be known.

When it is considered that this fishery has been carried on for probably a century, and the weight of the denudation has fallen upon the Harp seal—the inshore seal of Newfoundland—it may be considered surprising, that these animals have not resented the continuous slaughter by endeavouring to find a geographical position for their nursery more distant from the haunts of man. Unfortunately for the seals, the entrance to the Belleisle Strait appears to offer peculiar facilities for the furtherance of the object they have in hand. Saving Cape Walsingham, which may be dismissed as wholly unsuitable on account of the body of ice pressing south at the end of February, and the absence of food, there is no other position on the Labrador, that combines, 1st, a change in the direction of the stream sufficient to break the ice and permit of its dispersion or removal; and 2nd, a division of the current into three branches capable of dispersing in a fanlike manner the fragments shed from the side of the body ice; for it continues its original course in a broken, but homogeneous mass for some distance, or several miles beyond the turning point at Round Hill Island.

This suction into the Belleisle Strait, forms open water

at the junction of the streams N.E. of Belleisle, and allows sheet ice to be made in large quantities, which form one of the principal requirements of the Harp seal, which rides the inshore ice. This feature in the behaviour of the ice, due to the weakening of the western edge, by bodies of ice being shed to the westward by the combined action of the currents, tides, and occasionally and effectively the wind, has been known and utilised by the French for many years. The fishing fleet endeavour to enter the ice in the latitude of Cape Bauld or a little further north, because they find the body often loose and open on account of this weakness, but they do not always succeed.

But there is something more than the formation of sheet ice in this "mounting to ride" position of the inshore patch of the Harp seals. The old masters of the ice always maintained that these seals rode inshore, if the circumstances of wind and ice permitted them to do so, and that they "mounted" generally eastward of Battle Island, or Cape Bauld, sometimes as far north as Cape Bluff, but seldom further south than Cape Bauld. This statement will be probably approved by a considerable number of the ice masters to-day, but not all. The circumstances of wind and ice are more difficult; but if the ice is inshore and free, and the wind anywhere between south-east and north, by the westward: then the probabilities are, that the seals will mount between 30 and 45 miles off shore. Of course there must be objections to the statement. They would not probably ride so close, after a S.E. gale with the sea in the ice; or possibly, if it was blowing hard at north. Otherwise in an ordinary season, they would not leave the coast.

On the contrary, if the wind was eastward of north, round to S.E., they would probably keep off shore; and if there was no ice inshore, they would have to find it outside, perhaps 60 or 100 miles to the east, but about latitude 52 N. Packed ice inshore they always avoid; it must be "free"—and then they will ride outside. This position of, say, 40 miles east of Cape Bauld, or Battle Island, will place the seals either on the western edge of the Aretic current, or a few miles inshore, but in both cases in the influence of the S.W. current, which passes a few miles east of Belleisle, Cape Bauld, Groais Island, Cape St. John, to the Little Fogo Islands. The current is about 20 miles wide, so that it leaves a triangular space of eddy water between the Aretic current, and eastern edge of the S.W. current; and this eddy water is always freezing the pans of ice together during cold weather, as there is so little motion. This triangular space, enclosed by two currents of running ice, is often a "fast" even in moderately cold weather, if the wind is light N.W. with snow, and a temperature about zero. A single calm night at the end of February, with a temperature of eight or ten below zero, will transform this slowly-revolving collection of pans of ice into a serious obstruction for a sealing steamer—in fact, a solid jam. This is a peculiar and well-known position; and it will be noticed, that if the seals ride to the east of Belleisle, say 40 miles—because it is considered that this position is often occupied by the inshore Harps—then the body must either drift in the S.W. current round this triangular space, which it often does, or obtain a west or S.W. wind to take it into the Atlantic, the object to be obtained. During moderate seasons, the seal ice often

follows this S.W. current, and the seals are taken 30 or 60 miles eastward of Fogo Island or at the Funk Island, or off Cape Bonavista. For this S.W. current is generally swifter than the Arctic current, as it is a continuation of the inshore stream of the Labrador current, which may be said to commence at Cape Walsingham, and is always increased in speed by winds eastward of N. by E. This current surrounds Newfoundland, and is an important factor in transporting the seal ice across the mouths of all the bays on the east coast. The wind is the principal directive agent, however, at this time of the year; it rules the ice, and therefore the winter of Newfoundland. But this position of the seals mounting the ice eastward of Belleisle is peculiar, on account of the variable winds which obtain at the mouth of the Belleisle Strait; although the seals ride either at the division of the two currents, or a little further south, and may be regarded as "cornered" or retarded in cold winters by the triangular space of ice, for there can be no doubt that the seal ice is often detained off Belleisle; yet the west winds out of the Belleisle Strait, compensate to a great extent for the restricted course they must pursue, and enable them to pass to the eastward.

The prevailing wind on the Labrador coast is N.W., with short changes to N.E. and S.E. A N.E. wind is very common in March, simply because the wind is usually blowing "off" a body of ice, and the ice is always east of Cape Bauld or Newfoundland in March; and this approaches a subject of wide importance both to seals and men. We have noticed that there are seasons such as 1863, 1875, 1882, and 1896, when Baffin's Bay appears to overwhelm the east

coast of Newfoundland with a continuous winter from December to June; and, if the old reports are correct, these seasons were intensified previous to 1850—at least, it is certain that Aretic animals frequented the Gulf of St. Lawrence, and the east coast of this island in greater numbers than they do to-day. Polar bears, foxes, the walrus, and the *Phoca Barbata* rode the ice in much larger numbers; they were common in the Gulf, but not now. The question of volume appears to swallow up all other considerations on these occasions; even the wind appears powerless, although it must be regarded as potential in assisting the ice to these shores.

There can be little doubt that the N.W. winds assist in keeping the body of ice off, or clear of, the Labrador coast until the end of January: and it has been travelling from Cape Walsingham for seventy days. Yet it does not appear to affect the Labrador coast to any extent until July and August: but as soon as the volume reaches the dividing point at Round Hill Island, and Belleisle, it appears to cast a pall upon all these lands and waters, including the Gulf of St. Lawrence. N.E. and east winds reign supreme; the west winds in the Belleisle Strait struggle as far as Blanc Sablon, or Forteau, but fail there; the sea of ice extending 250 and 300 miles eastward of Cape Bauld swallows it up. The seals struggle to get north to their appointed riding ground, and, notwithstanding a sea of adversity, two of the patches ride not far from the old haunt, whatever happens. The laggards may be obliged to mount south of Fogo Island, but the main bodies are in their places 60 to 100 miles east of Belleisle and the attendant Hoods 50 miles to the N.E.

Generally speaking, they do not find their way very far south on these occasions—the Funk Island is usnally their limit; but occasionally, as in 1882, the seals were taken early in April 220 miles S.S.E of Cape Race. White Bay, and Notre Dame usually received them; they are pressed into the coast, the inshore ice is crushed up, and wasted away with the outside pressnre, and the seal ice slowly moves into the bays.

Occasionally, it is supposed, that the greater part of the February ice is drawn into the Belleisle Strait; on one occasion the Hood seals rode the sheet ice, and bored like the Harps, only ten miles distant from that body; because, as the sealers reported, there was no more ice. That they saw no more at the time, about the end of Mareh, is quite possible. They had been seeking for some days, and struck the patch about 170 miles S.E. of Cape Bauld. But a N.W. wind will account for the disappearance; it is very seldom that the midway stream of ice from Davis Strait is dissipated by the end of March; it may be a long way off shore however.

The reader is invited to suppose himself on the ice about 40 miles to the eastward of Battle Harbour in latitnde 52° 20′ N. There is nothing to be seen but ice, on the horizon are one or two icebergs, and in the middle distance a streak of rough ice with one or two small bergs about 18 or 20 feet high, called "half island pans," with some hummocky ice close to them. In the foreground is a level sheet of ice two or three miles broad, intersected with streaks of ice of a rougher character, and here and there a lump sticking up two or three feet. To the west there is a

streak of water about 50 feet wide, ending in a lake tending to the S.W. and a number of seals playing about in it. This level sheet of ice is one of the nurseries of the Harp seal. It is well clear of the land, slowly drifting in the current. There may be 50 miles of ice to the eastward, all intersected with lakes, pools, and lanes of water.

The seals are now mounting the ice, and for another month they may be considered as being the sport of the winds and currents; anything may take place, the ice may be driven into Atlantic storms, or split upon the coast, rent asunder, and driven hither and thither; so that the subsequent proceedings are rather difficult to forecast. It may often transpire that the seal ice drifts one hundred miles to the eastward of Newfoundland, before the young seals are able to take to the water. Or they may drive into White Bay or Notre Dame, or even Bonavista Bay. There is time to do a good deal of drifting about; driving into White Bay for a few days, then blown out, and drifted off Cape St. John, and back into the Atlantic.

The first duty of the seal is ice-boring. The ice is clawed into a small hole, the claws planted firmly in the hole, and body revolved round by the hind flippers; it is a double purchase and expeditious. The hole permits the seal to come up close to the young white coat and suckle it. The old seals fish all day, and return to the ice in the evening, when the little ones are crying very much like the human infant. The old seals bark. Imagine an anxious mother, after a hard day's fishing, first finding the ice, which may have drifted a few miles since the morning, and then selecting her own particular hole out of 250,000. It very rarely

happens that fish, or food of any description, is seen on the ice; everything is consumed in or under the water.

The young Harp weighs 7 to 9 pounds, and measures about 2ft. to 2ft. 6in. The hair is woolly. It has a small V-shaped slit in the tip of its tongue. It is helpless, and often drowns. It remains for about 12 or 14 days in the same position it was born; the heat of its body melts a hollow beneath it. It increases in weight about 1½lbs. to 3lbs. a day, depending upon the weather. If it is a fine, quiet, mild season they grow slowly. If it is a cold, stormy, bitter winter, with plenty of snow, and sharp changes to S.W. with heavy rain, shifting into N.W. with frost and snow, it grows rapidly. It likes being buried in the snow, and eats quantities of it. When it is about 25 or 27 days old the pelt, or skin and fat, will weigh from 45lbs. to 60lbs., all depending upon the weather. It begins to lose flesh as soon as it changes its coat to pearl grey with brown spots. It requires a few days to learn to swim and paddle about, and then the mother appears to forsake it. The young seal immediately steers N.W. for the land, resting on pans of ice, and very foolishly sleeping in the sun, where both bears and men destroy it. As soon as they reach inshore and obtain food they "bow the current" for Baffin's Bay; it's a long journey, but they are supposed to reach there at the end of May or in June. With reference to the period of gestation, the general reports point to the end of March or the first week in April for pairing off. The old seals begin to ride the heavy ice to change their coats early in May, and that is a period of weakness, so that it is improbable after that date, because when they leave the ice they beat inshore and

work down the coast. It is considered probable that forty-seven weeks will approach the period. Twins are not common, but they are seen occasionally. In March, 1884, a young Harp seal was taken off the ice, with two complete bodies joined at the side, but only four flippers; it was 18 inches long. After leaving the ice the young seals become rapidly thin, owing to the great exertion of swimming, and are called "beating seals." They are netted in numbers travelling north, as they follow the coast the whole way when it is clear of ice, and the Labrador, is often a little open inshore in June.

These remarks are applicable to all the Harp seals whether in the Gulf of St. Lawrence or on the east coast of Newfoundland; all the seals ride the ice about the end of February, or early in March. The old sealing masters used a particular day to represent the approximate birthday of their "best friends"—February 28th—and considered the young seals would be usually clear of the ice about April 10th. The northern patch of seals are generally seen about twenty to thirty miles eastward of the Spotted Island or Cape Bluff. It is only a small patch of Harps, and the accounts are diversified. Good seals have been taken in the strait, for they usually drift in between Belle-isle and the main, as they ride near to the shore. But the general account represents a small yellow seal with curly hair, born at the end of March or early in April. Many ice masters consider that they represent the young of the bed-lamers of the previous year. This patch of seals is not seen every year however. The latest well authenticated date for an abnormally born Harp seal is May 1st.

As soon as the old seals mount the ice, the bedlamers of various ages retire to ice situated ten or fifteen miles S.E. and S.W. true, of the main breeding ice; the males to the S.E. and the females to the S.W.; and they remain about until possibly the old seals forsake the ice. But the body of ice may soon alter its relative position; so long as it remains "free" there may be some slight directive connexion, just as the Hood seals rode N.E. of the Harps to-day; but to-morrow anything may take place to alter these appropriate arrangements. A S.E. gale might cast the ice off shore, and completely disarrange the bedlamer position. Or a N.E. wind might close the ice with the land, and bring the Hood seals south of the Harps and inshore; or a west gale would take the whole body to sea. The persistency of the relative bearings of one group of seals from another, and also from particular positions on the coast during ordinary seasons, is one of the remarkable features in this migration; that on the day (so to speak) when the final consummation of a long peregrination has been completed, that the two separate and distinct bodies of seals should occupy relative bearings from each other like drilled soldiers, and this under often very trying and difficult circumstances, has been, and is now, the marvel of the ice-masters; and these, so to speak, selected positions (probably by the Harp seals) in a fluvatile body, at the mercy of the winds and currents, which may be disarranged or divided not many days or hours after the plan had been carried out.

The bees and ants show great skill and perseverance in arranging for their young, but their difficulties are child's play to the war of the elements these animals have to

contend with. Seasons like 1863, 1875, or 1882, try the courage and perseverance of men, born to contend with the ice and sea; but where would *they* be if the "plan of the seals" was not carried out with marvellous precision?—emphatically "clean," *i.e.*, empty.

It is only an extraordinary absence of ice that induces the Hood seal to become gregarious; they are habitually bad tempered, and consequently occupy five or six times the area of the same number of Harps, so as to avoid collision with their near relatives. Consequently they are found on the eastern edge of the ice, among pools or streaks of water and rough ice; for they are not partial to boring, and must occupy positions near open water where they can fish. It is a collection of little families of three to five scattered over the ice as access to the water permits, nearly always 30 to 50 yards apart, and often a much longer distance.

When these two eastern bodies of Hood seals are compared with the scattered spots of seals on the Labrador ice 500 miles in extent, it is difficult to resist the thought what induced these particular seals to become guardians or servants of the Harp. And when the Gulf Hoods are considered, which ride fast sheet ice, and bore like Harps, and this several degrees south of any Hood seal in the northern hemisphere: the question arises is this friendship or natural selection? The *Stemmatopus Cristatus* may be regarded as one of the family.

There is little more to be said on the subject of time, as the Hoods conform to the same dates as the Harps, excepting the period that they remain on the ice; for the young Hood is not born a helpless "white coat," although it was

clothed in white at one period of its existence, and like the young *Barbata* leaves the tokens of its previous dress upon the ice. The young Hood comes into the world fitted for life's struggle, but requiring growth and seasoning; yet in all probability it is capable of taking the water a very few hours after birth. At least in a well authenticated case the mother snatched up the infant, born only a few hours, in her arms, and plunged into the water. Yet they usually remain on the ice about twenty or twenty-six days, to prepare themselves for a long journey. The disappearance of the Hood seals of the eastern coast of Newfoundland speaks of a different home than Baffin's Bay. The bond of union or service existing between the Hood and Harp during their long migration, appears to be severed with the mounting of the ice; the subsequent proceedings of the body that mutually bears them is independent of either Hoods or Harps – it bears them to weal or woe. The bourn of the Hood is Cape Farewell, or the west Greenland coast, where it rests, and fishes until a late date in September: when the journey to some point on the Labrador is carried out, and the forces reassemble to carry out the role of the Harp in the annual procession to the Banks of Newfoundland.

The enemies of the seals gather round the seal ice in considerable numbers during the period of nursing. Sharks and sword fish attack them under water, and the polar bear and Arctic fox on the ice. But the bear is not a destructive animal; although the feast is large, they are noticed to take only sufficient for their present want. The greater portion, if not all the bears and foxes that ride the seal ice, must perish eventually. The evil day is put off by a swim to a

berg, or landing on Newfoundland, but occasionally the swim to the coast has been a very long one indeed, for their power of endurance is great—probably 70 to 80 miles—and sometimes they have been seen heading for the coast nearly 100 miles off shore. Wild ducks frequent the ice in large numbers, and become very fat; but what they eat is a difficult question to answer, unless it be the little pools of milk by the young seals, or the remains of the bears' feast.

The Gulf of St. Lawrence body, moving to the westward in the Belleisle Strait, are difficult to follow after they pass Bonne Esperance about the new year. It is their proclivity to cling to the ice-bearing current, which retains a long winter on this portion of the coast; but the seals are believed to spread themselves in the gulf until the ice-riding period approaches, and are noticed at Anticosti and the western shore. About the year 1848 a group of Harp seals, was reported to have taken up their residence between Anticosti and the Mingan and Esquimanx Islands, and remain there all the summer; there is, however, no further information about them: only, there is an ice riding seal called the "Horse Head" on account of the shape of the nose and mouth, which does not appear to be noticed in the Belleisle Strait or the east coast of Newfoundland, where it ought to be netted or taken on the ice if it were migratory. It is also reported to produce a white coat at the usual date, and ride the ice westward of Mecatina. The sealers do not consider that they are numerous. There is a specimen in the museum at St. John's, Newfoundland.

The seals are usually seen in the Cabot Strait in December, but the date of their arrival appears to be influenced by the

wind, and possibly the strength of the Arctic current flowing past the east point of Anticosti. They may be described as sensitive to the influence of the wind when hunting and fishing, like the cattle, and fish. The lake trout is always found away from the wind; the wild cattle drive before the storm; and so it is with the cod fish, and seal, who are noticed on the northern peninsula to cross from point to point of small bays or inlets in a strong offshore wind, as if they understood that the fish would move out. In this case, if the wind in the early days of December has been easterly or northerly, the seals may arrive before the middle of the month, but if they have been westerly or southerly, not until the latter part. They appear to cross over from the east point of Anticosti to the Bird Island and the Newfoundland shore. Whether these seals pass to the south across Banquereux, and on to the Sable Island, cannot be stated; but they appear again in the Cabot Strait about the 10th or 15th of February. The Hood seals are noticed in the middle of the strait, moving up towards the Bird Island, as they ride the ice between St. Paul's Island and Bird Island. This body is supposed by the most experienced ice masters, to represent an influx of eastern seals, or a portion of the body moving to the S.W. of Cape Race. One of the oldest ice masters sailing to the Gulf fishery, Captain Aaron Forsey, remarked that the seals were generally noticed coming into Port aux Basque, about the 10th of February, and press out with the wind,—a graphic description of their evanescent character at this time. But these were Harp seals, only we cannot say where they came from; they may have been coasting about Ramea and the "western shore," as the

inhabitants call the south coast of this island, or they may have been to the banks? The local wind at Port aux Basque is S.E., even when the wind is evidently S.W. in the offing, towards the Cape Breton shore. Northerly and N.W. winds with frost and snow are common in December, January and February. It is a stormy cold place in winter.

It is supposed by some that the Hood seals, which ride the ice off Point Rich, come through the Belleisle Strait, and the St. Paul's seals come round Cape Race; only the northern patch of Hoods do not always ride Point Rich ice, they sometimes ride in the vicinity of Watagheistic.

The Harp seals ride the ice in the Gulf in two patches, one on the Newfoundland shore, from Point Ferolle to St. John's Island, on ice extending three to five miles off the rocks and islets, according to the season. The seals in the Gulf, ride ice which they consider is fast to the coast: unfortunately for them, gales of wind often break off large strips of ice, which in this case nearly always drift through the Belleisle Strait.

The larger body, ride the ice on the Labrador coast, extending from great Mecatina to Watagheistic, on ice reaching out four to seven miles from the rocks and islands, all depending upon the winter. Some seasons there will be very little ice, and occasionally the Gulf will be "fast" from shore to shore for a few days. Then a Westerly gale will set in, and the thin Gulf sheet ice, only three to five inches thick, will rear up and raft in a surprising manner, often burying the young seals, and piling up ten feet above the water. These seals are a shorter and stouter variety than the eastern patches, and ride ice which is to a certain extent

quiet, and without violent movement, unless torn away from the shore by gales. They produce their young at the same time as the eastern seals.

The Hood seals riding the ice of the Bird Rocks, and St. Paul's, are considered to be a larger seal than the eastern body and bore the ice, and behave very much like the Harp seals, only they spread themselves over a much larger surface of ice, and occupy the most southern position in these waters. The young Hood will weigh 8lbs. to 12lbs. when born. It has a grey back, fading into white below, and brown spots. The male develops the hood, which is probably granted as a protection for the eyes, as they fight furiously, and use their powerful fore claws and teeth with great effect. It is a mistake to suppose that these large, and unwieldy animals, cannot move smartly on the ice—they will travel at a considerable speed occasionally.

Like the eastern seals, the bedlamers of both Hoods and Harps occupy positions on the ice a considerable distance from the breeding ice. About the first week in April, the young seals will be taking the water, but many of them do not leave the Gulf of St. Lawrence until May or June; and a number of the old seals appear to linger in this favoured fishing ground, as the ice is about until the end of June, and often July. The Hood seals, of course disappear as soon as the young are able to care for themselves, but a number of the young Hoods remain. It is an ancient report that all the Hoods pass through the Belleisle Strait, on their journey home; but they keep well in the middle of the strait—they are very wary animals.

About the first of May, the Harp seals and a large number

of bedlamers, ride the heavy floe seventy or a hundred miles to the eastward of Cape Bauld, and as far north as Cape Harrison on the Labrador, to change their coat; but they take great precautions, as they evidently feel the impending laziness, or helplessness, incident to the change. They ride in large groups many miles apart, but each company of old seals have a smart bedlamer sentinel, perched upon a hummock, to warn them of approaching danger. The heat on the ice is often considerable in sunny days, and the backs of the seals blister with the sun, for they remain on the ice about fifteen days, lying about and rubbing the old hair off. The water evidently scalds them when they attempt to fish or are hurried off the ice by the approach of danger. Like the whale, all these animals are infested with parasites; and nature has provided this opportunity of getting rid of them for a short time. Their Hood friends ride the Farewell ice a month later, but it is usually wrapped in fog, which must be refreshing, if dangerous, as it permits the sealers to approach them. There is very little fog in May on Cape Bauld, the warm water is a long way off.

About the 20th of May, the Harps are moving up the Labrador coast, and making the land whenever the ice permits them, to hunt and fish. Occasionally, they venture up the arms under the ice, where they know the brooks will have rotted the ice at the head, stirring the caplin (*Salmo arcticus*) out of the mud, where they hybernate during the winter. It is a delicacy they seldom enjoy, but they must often obtain the real salmon in the vicinity of Cape Mercy, or Cumberland Sound. The ice will be open in Baffin's Bay, in the middle of June, when the great body of seals will

have returned from their nine months' excursion to the Banks of Newfoundland.

The bedlamer is an important link in this migration, for a large proportion of the netted seals, are young seals from one to five years old, of all varieties; now the seal net is never far from the shore, consequently if Harps, Hoods, and *Barbata* are caught in one day, in the vicinity of, say Griguet, or Forteau; the inference to be drawn from the fact, is that the bedlamer is not restricted to a particular position in the "string," or body of seals passing that point. That the young seals congregate together like the young of other animals, irrespective of size or colour, and, like them, are playful, active, inquisitive, and when they are four years old, fearless. These characteristics were more easily observed fifty years ago; they used to come in to close harbours, and play about the boats and stages like children. But here is a wild, large, yellow-nailed seal, often noticed and caught in these positions; joining with the giddy throng passing to the south, or north; but it is unlike them; it has no parent, or aunt, to follow and obey. What is it doing here then? The only answer is, enjoying itself—taking a holiday excursion. Well, but this is not a usual proceeding amongst the pinnipeds—some other seal must have persuaded it to leave its parents or friends for eight or nine months?—for in this throng all the various members of the families are represented.

Now compare the position of the elderly seals passing along the coast. The Harp generally keeps as near to the coast as it dare; perhaps half-a-mile, or a quarter of a mile off shore, sometimes less; they fulfil their title "the inshore

seal of Newfoundland," whether coasting or riding the iee. But they are cautious, staid creatures, they stand off, at the slightest danger or obstacle.

The Hood seals may be two or three miles outside, sometimes more, all depending upon their position on the coast; occasionally, passing through narrow channels, the two strings may be close together; yet, so far as they have been observed, there is no mingling of the two varieties—strict order is enforeed. It is only the giddy bedlamer that breaks the rule of the road.

But what a road to traverse!—they break up into three distinet streams—perhaps four. What must the exeeutive be that marshals these minions?

Where is the Hood seal diseiplined like this? There are plenty in the world north and south, the *Stemmatopus* is the same family. Some of them must have been notieed?

The executive are evidently unable to control the bedlamers, they are into all the stages and nets and craft inshore, and are netted and shot aeeordingly. But the bedlamer by his very actions, proclaims a certain bond of union, however feeble, between the Harp and the Hood. The young seals enjoy life together, however distant their respective parents may be! The writer has never heard of a mingled body of old Hoods and Harps seen in the water together. A skilful and acute observer was beset in his ship, and erushed into Notre Dame Bay by the eonvolutions of the body of ice that mutually bore the old seals into elose contact one with the other. There was no anger exhibited by the old Hoods, which is displayed by the inflation of the hood; but there was an evident effort to shrink away from

the old Harps, as if their presence was not desirable; but there was no escape—no reaching any water, it was a heavy jam. The two distinct bodies of Harps and Hoods, migrating to the south, are constantly seen, and have been noticed for a century; but the etiquette of the varieties precludes any approach of the elder seals—to the writer this speaks volumes.

The distance between the two varieties, is as great to-day, as if Farewell separated them; the blue nails and the yellow nails have no sympathy with one another; the only feature in the migration that appears to have influenced the wild Hood to submit to the rule of the migrating Harp, and accept an outside but parallel position to the ancient traveller, was food. And it was evidently only a section of the Hood seals that accepted the situation, which in several hundred years has transformed the animal into a very different creature from their scattered brethren on the rough ice of the Labrador. And the *modus vivendi* was probably the bedlamer—there appears to be no other avenue of approach between the mild, graceful, and persistent traveller into the southern waters of the Arctic current, and the Hood. As the *Phoca Barbata* is led to day—so in the past; the *Cystophora Cristata* was led, by the amenities of the young seals, and obeyed the *rôle* of the *Greenlandica*. This theory of the writer is not all his own, for the position of the Hood is too curious to be unnoticed by a critical observer. Captain A. Jackman considers the Hood seal to be an imported variety into these waters and the writer entirely agrees with him.

The writer views with regret the reported expulsion of

the *Cristata* from the ice south of Farewell; if it does prove to be a permanent change the results may be far reaching, for it is reasonable to infer that they have probably made one change of longitude in the past. When we consider that their riding-ice extends in a very broken and fragmentary manner, from Cape Ray to Cape Chidley nearly thirteen degrees of latitude, we may well ask are they increasing? And it is strange, that none of the eastern *Greenlandica*, which are apparently a differently marked and coloured seal from the Baffin's Bay variety, have been noticed to the westward of Farewell. Does not this circumstance appear to indicate that the Farewell ice has become the particular resting place of the *Cristata* of these western waters; in the same way as they ride the St. Paul's ice, which the *Greenlandica* never approach. Perhaps the *Greenlandica* of the east are similarly situated and do not frequent the Farewell ice, which may account for their absence from these waters. East Greenland may be termed the home of the *Cristata* to the same extent as Baffin's Bay is the home of the *Greenlandica*; only, the *Greenlandica* complete their toilet south of Cape Mugford; they do not return to Baffin's Bay for any particular purpose, unless it be a change of air, and water temperature; of course their migratory habit impels the young and old seals to return to what was evidently their home in the past, but they do not appear to thrive very well there now; they arrive some time in June in excellent condition particularly the bedlamers, and leave probably early in October in thin hunting condition, which does not speak in flattering terms of Baffin's Bay diet. But it appears as if necessity compelled them to

escape from the warmer temperature of the east coast of Newfoundland. Look at the evident distress of the young seals of both varieties lying on the ice in a mild winter, particularly the *Cristata;* they only exist. Newfoundland in a mild season is not suited now for either variety. Both old and young rush inshore where the cold water travels rapidly, and north as soon as possible after the great event of the migration has been accomplished. Then see the suffering of the old seals riding the heavy floe to shed their coats. Migration was a necessity in the past, as it is to day; it is sterner to-day, but the seals must live.

The *Cristata* of the east coast of Newfoundland leave the ice about the first week in April and do not return to the Labrador coast until probably early in October; but the Gulf section will be later, perhaps the middle or end of April; there is little to guide us except distance with these seals; so that they are absent from these waters about six months. But the *Cristata* leave for a definite purpose, they go back to Farewell to shed their coat in June; it is evidently a habit which has not left them; and further notwithstanding their apparent tractability in keeping their outside position during the migration: and their comparatively restricted breadth of breeding ice: their occasional abnormal ice boring on the east coast: and the occupation of a definite directive position from the Harp seals:—in fact the docile habit that appears to have been imparted to these wild animals by the mild sway of the migrating Harp:—yet they cannot forget the heavy east Greenland floe ice; that predilection still survives in the eastern patches: they press out to the rough ice on the eastern edge of the body.

These are circumstances, and survived habits which appear to the writer to point to a change of locality in some distant bygone years—the possible introduction of the *Cristata* into a milder form of ice than the rugged stream flowing down the east Greenland coast? The position of the *Cristata* in the Gulf is well worthy of notice; they ride nearly in the opposite direction to the eastern body—all to the west or S.W. of the Harps; and the St. Paul's patch of Hood seals appear to represent the guardians of the strait. It appears idle to speculate on the circumstances that produced such a change in the natural disposition of these seals, noted for being a wild off-shore seal in these waters. But we are viewing to-day the last remnants of the Arctic animals that frequented these waters in 1593; the walrus was a constant visitor to the Gulf, and no doubt the *Barbata* and *Greenlandica* abounded; it is only the migratory habit of these last two varieties that have preserved them.

The whole aspect of this interesting migration and concomitant circumstances feebly portrayed, appear to the writer to look back to a period in the past, when Cape Farewell was a barrier between the eastern and western hair seals, possibly about the year 982, but the verdant period faded away about 1408 when "the gradual increase of ice surrounded those coasts, and communication with Europe was completely cut off" (Dr. Foster *in loco*.) The *Cristata* appears to have followed the ice down and eventually found its way into these waters. The earliest mention of the Hood seal in Anspach's N.F. Ld. is 1763 but they probably were migrating long before that date. The difficult question to solve, is how was this protective, and directive arrangement between the two varieties first originated?

Statistics of the Position of the Seals, and State of the Ice.

Extracted from the St. John's Papers, and other Records.

AN EXTRACT FROM AN OLD SEALING DIARY, BONAVISTA.

1822. May 17th and 18th: "Plenty of dead cod fish about and old and young Harps, boats could load with either of them." The seals had just come in from the heavy ice, where they had been shedding their coats. There was ice in to the shore.

The Harp seals in this case had moved into deep water, and driven the cod up to the surface, where the water would be at a lower temperature than below. The cod became paralysed, and apparently dead, but would have revived if placed in salt water at a higher temperature. The Basque fishermen called them Morruha, because they saw them attempting to reach the Labrador coast, through the ice near to the shore—"rushing to death." Cod can only exist at a certain temperature, but it is low. In June and July,

in the vicinity of Ferryland, cold streaks of water occasionally flow south, when no fish can be caught.

1841. March 16th: Young seals seen on the ice, three hundred miles east of Cape Bonavista.

1865. Jan. 3rd: Drove to church with wheels; no snow; a mild winter at St. John's.—Jan. 26th: Harbour full of slob ice.—Feb. 19th: Ice in to the coast.—Feb. 21st: A heavy jam, no water in sight.—March 18th: A male and female *Phoca Barbata* killed off Harbour Grace, Conception Bay.—Feb. 27th: Seals taken off Cape Freels, and Notre Dame Bay.—May 20th: A walrus brought in from the Belleisle Strait.

1866. A bitter January and February.—Feb. 13th: All ice. Several vessels lost in the ice; crews perished.—April 9th: A number of sealers jammed in Bonavista and Notre Dame Bays.—April 15th: Seventy sail jammed in Bonavista Bay. Seals. A good voyage.

1867. Feb. 11th: N.W. gale, heavy weather.—March 14th: Seals taken off the Funk Island and in Bonavista Bay. A mild season.

1868. Very hard winter.—March 30th: Seals off Kirpon.—April 3rd: Seventy-five vessels jammed in Notre Dame Bay. Seals.

1869. March 27th: Capt. A. Jackman, S.S. "Hawk," loaded with Harps.—April 12th: Seals all north of Fogo Island, taken off Groais Island.

1870. An open season. East winds in March; bays full of heavy ice.—April 9th: Fifty vessels jammed in

White Bay. Seals.—April 10th: Body of seals in Belleisle Strait; good voyage. The ships remained beset in the bays until May 30th.

1871. Jan. 3rd; Cable ship "Robert Lowe" in the ice 170 miles east Trinity Bay. A mild winter.—March 10th: Twenty-one sail jammed in Bonavista Bay. Seals. S.S. "Wolf" cut in two by a berg in White Bay. Seals.—May 24th: A body of ice in the bays.

1872. A cold winter.—March 25th: Gales of east wind, all ice; bays full. Seals all north of Fogo Island taken off Groais Island. May 12th: A number of piles of seals were found on the ice marked with flags off St. Pierre, on the south coast.

1873. No remarks.

1874. March 18th: Seals all north, taken off Fogo on the 19th.—April 3rd: S.S. "Tigress" blew up off Funk Island, in the seals.—May 12th: Old seals in S.S. "Nova Scotia"; out of 1,800 seals only twenty were female Harps.

1875. A cold winter.—Jan. 16th: "Caspian" passed through sixty miles of ice.—Feb. 16th: Thermometer 21° below zero. All ice, no water. The seals were all taken between Cape St. John and Funk Island.—April 3rd: A good trip of old seals.

1876. Jan. 5th: A heavy body of ice on the coast.—April 8th: Seals in White Bay. A large number of seals taken north of Fogo. Many vessels beset in Notre Dame Bay on May 30th.—A very mild winter in Greenland.

1877. Feb. 24th: A total absence of ice on the coast.—

March 17: S.S. "Greenland" in seals, 150 miles E.S.E. of Belleisle. All seals rode east, no ice inshore.

1878. A mild winter. All seals in White or Notre Dame Bays.

1879. Very mild. All seals taken to the eastward; no ice inshore.

1880. Moderate winter.—March 23rd: Seals off Bonavista —April 3rd: Seals off St. John's. The body south. Heavy ice on the coast; bays all full.—April 16th, Lance à Loup, Belleisle Strait: A large number of seals passing up the strait, *i.e.*, going into the Gulf. —May 10th: S.S. "Neptune" forced down to Cape Harrison, Labrador; heavy ice; obtained a thousand old Harps.

1881. Seals taken in Notre Dame Bay and Funk Island.

1882. A very heavy year of ice.—Feb. 27th: Dundee fleet off St. John's; 200 miles of ice to the eastward.— March 10th: Dundee fleet hawsed the ice into St. John's Harbour.—March 28th: A heavy body of ice extending west of St. Pierre bank.—No bankers arrived at St. Pierre until April 18th. On same date seals taken S.S.E. 220 miles from Cape Race.

1883. A cold winter.—March 14th: Seals taken 150 miles east of Belleisle.—April 2nd: Seals taken 20 miles east of Cape Bluff on Labrador.—April 9th: Seals taken off Groais Island. A bitter winter in the Gulf, the ice rafted 20ft.—April 11th: Seals in Notre Dame Bay.

1884 A very cold winter.—April 9th: Seals taken n

White Bay and Notre Dame. A young Harp 18in. long, with two bodies joined at ribs, only four flippers.

1885. A cold winter. All the seals north off Fogo Island.

1886. A mild winter.—March 30th: Seals taken off Fogo and Funk Islands and Notre Dame Bay. "Resolute" lost on Ireland R..

The writer regrets that he has mislaid the statistics of the notice of seals at Cape Race Lighthouse, which are an important link in the chain of evidence; but it is only during excessive ice sheds that the seals are seen after the 20th of February near the Avalon coast.

In addition to the evidence of Cape Bonavista, where the seals are often noticed journeying south early in January, and sometimes December, they have been observed at St. John's early in January. They precede the ice always. On January 6th, 1881, seals were seen near the harbour. It can be only an accident that any record is made of these trifles. On February 16th, 1876, old seals were noticed in Trinity Bay, the only record of the journey north.

On April 7th, 1877, a young *Phoca Barbata* was caught near Harbour Breton, Fortune Bay. This is the only notice of this variety so far south.

With regard to the weight of the "pelt," or fat, and skin of young seals, *i.e.*, all that is brought in of the animal, except a few flippers; they appear to range between 48 lbs. and 52 lbs.; occasionally they have averaged 57 lbs.

When the subject of the cost of production is considered in connection with the sailing sealer, and the steam sealer,

the result of the bare figures—without taking into consideration the wide distribution of benefit, the constant winter employment, and the introduction of good food at the very period it was most wanted—is surprising:—

The voyage in 1883, steam, 553,495 seals.

„ „ 1832, sail, 508,000 „

They are both very good seasons. To expand upon this monetary view of . e seals, at the end of the 19th century might be considered as a retrocession into obsolete methods of capture—nevertheless, there was a widely-extended comfort obtained by the old method.

For Reference

Not to be taken from this room