PART XVIII.

THE SEAL AND SEA-OTTER INDUSTRIES.

1.—THE FUR-SEAL INDUSTRY OF THE PRIBYLOV ISLANDS, ALASKA.

By Henry W. Elliott.

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PART XVIII.

THE SEAL AND SEA-OTTER INDUSTRIES.

1.—THE FUR-SEAL INDUSTRY ON THE PRIBYLOV GROUP, ALASKA.

By Henry W. Elliott.

1. DISCOVERY OF THE PRIBYLOV ISLANDS.

Search of Russian explorers for sea-otters and seals.—All writers on the subject of Alaskan exploration and enterprise agree as to the cause of the discovery of the Pribylov Islands in the last century. It was due to the feverish anxiety of a handful of Russian fur-gatherers, who desired to find new fields of gain when they had exhausted those last uncovered. Altasov, and his band of Russians, Tartars, and Kossacks, arrived at Kamtchatka toward the close of the seventeenth century, and they first found, of all men, the beautiful, costly, rare fur of the sea-otter. The animal bearing this pelage abounded then on that coast, but by the middle of the eighteenth century they and those who came after them had entirely extirpated it from that country. Then the survivors of Bering's second voyage of observation, in 1741–'42, and Tscherikov brought back an enormous number of skins from Bering Island; then Michael Novodiskov discovered Attoo and the contiguous islands, in 1745; Paikov came after him and opened out the Fox Islands, in the same chain, during 1759; then succeeded Stepan Glotov, who determined Kadiak in 1763, and the peninsula of Alaska followed by Krenitsin, 1768. During these long years a great many Russian companies fitted out at the mouth of the Amoor River, in the Okhotsk Sea, and prospected therefrom this whole Aleutian Archipelago in search of the sea-otter. There were perhaps twenty-five or thirty different companies, with quite a fleet of small vessels, and so energetic and thorough were they in their search and capture of the sea-otter that by 1772 and 1774 the catch in that group had dwindled from thousands and tens of thousands at first, to hundreds and tens of hundreds at last. A change of search and inquiry was now in order, and then the fur-seal, which had been noted, but not valued much, every year as it went north in the spring through the passes and channels of the Aleutian chain, then going back south again in the fall, became the source of much speculation as to where it spent its time on land and how it bred. No one had ever heard of its landing on a rock or beach throughout all Alaska or the northwest coast. The natives, when questioned, expressed themselves as entirely ignorant, though they believed that these seals repaired to some unknown land in the north every summer and left every winter. They also reasoned then, that when they left the unknown land to the north in the fall, and went south into the North Pacific, they traveled to some other strange island or continent there, upon which in turn

to spend the winter. Naturally the Russians preferred to look for the supposed winter resting-places of the fur-seal, and forthwith a hundred schooners and shallops sailed into storm and fog to the northward occasionally, but generally to the southward, in search of this rumored breeding-ground. Indeed, if the record can be credited, the whole bent of this Russian attention and search for the fur-seal islands was devoted to that region south of the Aleutian Islands, between Japan and Oregon.

PRIBYLOV'S DISCOVERY OF THE ISLANDS WHICH BEAR HIS NAME.—It was not until 1786, after more than eighteen years of unremitting search by hardy navigators, that the Pribylov Islands were discovered. It seems that a rugged Muscovitic "stoorman" or ship's "mate," Gehrman Pribylov by name, serving under the direction and in the pay of one of the many companies at that time engaged in the fur business, was much moved and exercised in his mind by the revelations of an old Aleutian shaman at Oonalashka, who pretended to recite a legend of the natives wherein he declared that certain islands in the Bering Sea had long been known to the Aleuts.

Pribylov commanded a small sloop, the "Saint George," which he employed for three successive years in constant, though fruitless, explorations to the northward of Oonalashka and Oonimak, ranging over the whole of Bering Sea from the straits above. His ill-success does not seem strange now, as we understand the currents, the winds, and fogs of those waters. Recently the writer has been on one of the best-manned vessels that ever sailed from any port, provided with those charts and equipped with all the marine machinery known to navigation, and that vessel has hovered for nine successive days off the north point and around Saint Paul's Island, sometimes almost on the reef, and never more than 10 miles away, without actually knowing where the island was. So Pribylov did well, considering, when, at the beginning of the third summer's tedious search, in July, 1786, his old sloop ran up against the walls of Tolstoi Mees, at Saint George; and then, though the fog was so thick that he could see scarce the length of his vessel, his ears were regaled by the sweet music of rookeries wafted out to him on the heavy air. He then knew that he had found the object of his search, and he at once took possession of the island in the Russian name and that of his craft.

But his secret could not long be kept. He had left some of his men behind him to hold the island, and when he returned to Oonalashka they were gone. And, after the next season had fairly opened, a dozen vessels were watching him and trimming in his wake. Of course they all found the island, and in that year, July, 1787, the sailors of Pribylov, on Saint George, while climbing the bluffs and straining their eyes for a relief-ship, descried the low coast and scattered cones of Saint Paul, 36 miles to the northwest of them. When they landed at Saint George, not a sign nor a vestige of human habitation was found thereon; but, during the succeeding year, as they crossed over to Saint Paul and took possession of it, in turn, they were surprised at finding on the south coast of that island, at a point now known as English bay, the remains of a recent fire. There were charred embers of driftwood, and places where grass had been scorched; there was a pipe, and a brass knife handle, which, I regret to say, have long passed beyond the cognizance of any ethnologist. This much appears in the Russian records.

2. DESCRIPTION OF THE PRIBYLOV ISLANDS.

The Pribylov Islands lie in the heart of Bering Sea, and are among the most insignificant landmarks known to that ocean. They are situated 192 miles north of Oonalashka, 200 miles south of Saint Matthews, and about the same distance to the westward of Cape Newenham on the mainland.

The islands of Saint George and Saint Paul are from 27 to 30 miles apart, Saint George lying to the southeastward of Saint Paul. They are far enough south to be beyond the reach during winter of permanent ice-floes, upon which polar bears would have made their way to the islands, though a few of these animals were, doubtless, always present. They were also distant enough from the inhabited Aleutian districts and the coast of the mainland to have remained unknown to savage men. Hence they afforded the fur-seal the happiest shelter and isolation, for their position seems to be such as to surround and envelop them with fog-banks that fairly shut out the sun nine days in every ten, during the summer and breeding season.

CLIMATE.—In this location, ocean currents from the great Pacific, warmer than the normal temperature of this latitude, trending up from the southward, ebb and flow around the islands, as they pass giving rise during the summer and early autumn to constant, dense, humid fog and drizzling mists, which hang in heavy banks over the ground and the sea line—seldom dissolving away to indicate a pleasant day. By the middle or end of October, strong cold winds, refrigerated on the Siberian steppes, sweep down over the islands, carrying off the moisture and clearing up the air. By the end of January or early in February, they usually bring, by their stealy pressure from the north and northwest, great fields of broken ice, sludgy floes, with nothing in them approximating or approaching glacial ice. They are not very heavy or thick, but as the wind blows hard they compactly cover the whole surface of the sea, shutting completely in and around the land, and for months at a time hushing the wonted roar of the surf. In the exceptionally cold seasons that succeed each other up there every four or five years, for periods of three and even four months—from December to May, and sometimes into June—the islands will be completely environed and ice-bound. The exceptional mild winters occur on the other hand, in about the same rotation, in which not even the sight of an ice-floe is recorded during the whole winter, and when there is very little skating on the shallow lakes and lagoons peculiar to Saint Paul and Saint George; this, however, is not often the case.

The breaking up of winter weather and the precipitation of summer (for there is no real spring or autumn in these latitudes) usually commences about the first week in April. The ice begins to leave or dissolve at that time, or a little later, so that by the 1st or 5th of May the beaches and rocky sea-margin beneath the mural precipices are generally clear and free from ice and snow; although the latter occasionally lies in gullies and on leeward hill-slopes where it has drifted during the winter, until the end of July or the middle of August. Fog, damp, thick, and heavy, rolls up from the sea, and closes over the land about the end of May; this, the habitual sign of summer, holds on steadily to the middle or end of October again.

The periods of change in climate are exceedingly irregular during the autumn and spring, so-called, but in summer the cool, moist, shady, gray fog is constantly present. To this certainty of favored climate, coupled with the perfect isolation and the exceeding fitness of the ground, is due, without doubt, that preference manifested by the warm-blooded animals which come here every year, in thousands and hundreds of thousands, to breed, to the practical exclusion of all other ground.

A large amount of information in regard to the climate of these islands has been collected and recorded by the Signal Service, United States Army, and similar observations are still continued by the agents of the Alaska Commercial Company. I simply remark here that the winter which I passed upon Saint Paul's Island (1872–'73) was one of great severity, and, according to the natives, such as is very seldom experienced. Cold as it was, however, the lowest marking by thermometer was only 12° Fahr. below zero, and that lasted but a few hours during a single day in February, while the mean of that month was 18° above. I found that March was the coldest month. Then

the mean was 12° above, and I have since learned that March continues to be the meanest month of the year. The lowest average of a usual winter ranges from 22° to 26° above zero; but these quiet figures are simply inadequate to impress the reader with the exceeding discomfort of winter in that location. It is the wind that tortures and cripples out-door exercises there, as it does on all the sea-coast and islands of Alaska. It is blowing, blowing, from every point of the compass and at all times; it is an everlasting succession of furious gales, laden with snow and sleety spiculæ, whirling in great drifts to-day, while to-morrow the wind will blow from a quarter directly opposite, and reverse its drift-building action of the day preceding.

Without being cold enough to suffer, one is literally confined and chained to his room from December to April by this æolian tension. I remember very well that, during the winter of 1872–'73, I was watching with all the impatience which a man in full health and tired of confinement can possess, every opportunity to seize upon quiet intervals between the storms in which I could make short trips out along the tracks over which I was habituated to walk during the summer; but in all that hyemal season I got out but three times, and then only by the exertion of great physical energy. On a day in March, for example, the velocity of the wind at Saint Paul, recorded by one of the signal service anemometers, was at the rate of 88 miles per hour, with as low a temperature as −4°! This particular wind-storm, with snow, blew at such a velocity for six days without an hour's cessation, while the natives passed from house to house crawling on all-fours; no man could stand up against it, and no man wanted to. At a much higher temperature—say at 15° or 16° above zero—with the wind blowing only 20 or 25 miles an hour, it is necessary when journeying to be most thoroughly wrapped up to guard against freezing for any journey to be made on foot.

As I have said, there are here virtually but two seasons—winter and summer. To the former belong November and the following months up to the end of April, with a mean temperature, of 20° to 28°; while the transition of summer is but a very slight elevation of that temperature, not more than 15° or 20°. Of the summer months, July, perhaps, is the warmest, with an average temperature between 46° and 50° in ordinary seasons. When the sun breaks out through the fog, and bathes the dripping, water-soaked hills and flats of the island in its hot flood of light, I have known the thermometer to rise to 60° and 64° in the shade, while the natives crawled out of the fervent and unwonted heat, anathematizing its brillancy and potency. Sunshine does them no good; for, like the seals, they seem under its influence to swell up at the neck. A little of it suffices handsomely for both Aleuts and pinnipedia during the summer months.

It is astonishing how rapidly snow melts here. This is due, probably, to the saline character of the air; for when the temperature is only a single degree above freezing, and after several successive days in April or May, at 34° and 36°, grass begins to grow, even if it be below melting drifts and the frost has penetrated the ground many feet below. I have said that this humidity and fog, so strongly and peculiarly characteristic of the Pribylov group, was due to the warmer ocean currents setting up from the coast of Japan, trending to the Arctic through Bering Strait, and deflected to the southward into the North Pacific, laving, as it flows, the numerous passes and channels of the great Aleutian chain; but I do not think, nor do I wish to be understood as saying, that my observation in this respect warrants any conclusion as to so large a gulf-stream flowing north, such as mariners and hydrographers recognize upon the Atlantic coast. I do not surmise that there is anything of the kind equal to it in Bering Sea. I believe, however, that there is a steady set up to the northward from the southward around the Seal Islands, which is continued through Bering Strait, and drifts steadily off to the northeast, until it is lost beyond Point Barrow. That this pelagic circulation exists, is clearly proven by the logs of the whalers, who, from 1845 to 1856, literally filled the air over those waters with the smoke of their "try-fires,"

and plowed every square rod of that superficial marine area with their adventurous keels. While no two, perhaps, of those old whaling captains living to-day, will agree as to exact course of tides,* for there does not seem to be any order to Alaskan tides, they all affirm the existence of a steady current, passing up from the south to the northeast, through Bering Strait. The flow is not rapid, and is doubtless checked at times, for short intervals, by other causes, which may not be discussed here. It is certain, however, that there is warm water enough abnormal to the latitude for the evolution of the characteristic fog-banks, which almost discomfited Pribylov nearly one hundred years ago, and which have remained ever since.

Without this fog the fur-seal would never have rested there as he has done; but when he came on his voyage of discovery ages ago, up from the rocky coasts of Patagonia mayhap, had he not found this cool, moist temperature of Saint Paul and Saint George, he would have kept on, completed the circuit, and returned to those congenial antipodes of his birth.

DIMENSIONS AND CONTOUR OF THE ISLANDS.—Until my arrival on the Seal Islands in April, 1872, no steps had ever been taken by any man whomsoever towards ascertaining the extent and the real importance of these interests of the Government, the Russians never having made even an approximate survey of the land, while our own people did no better. I was very much surprised, immediately after landing, and calling for a map of the island Saint Paul, to have an odd sketch, traced from an old Russian chart, placed before me, that my eye stamped instantly as grotesque, by the land-bearings which I took out of my window on the spot. It was a matter of no special concern however, to the Russians; had it been, doubtless they would have accurately surveyed the whole field. But it was and it is quite different with us; and, that no agent of the Treasury Department, or other branches of the Government, had, up to that date of my arrival, given it the slightest thought or attention, struck me as rather lame. It was, and is, and ever will be, a matter of first importance to a correct and succinct understanding of the subject, and it was the first thing about which I busied myself. I present, therefore, with this memoir, a careful chart of each island, and the contiguous islets, which are the first surveys ever made upon the ground, having the slightest pretension to accuracy or respect.† The reader will observe, as he turns to these maps, the striking dissimilarity which exists between them, not only in contour but in physical structure, Saint Paul's island being the largest in superficial area, and receiving a vast majority of the pinnipedia that belong to both. As it lies in Bering Sea to-day, this island is in its greatest length, between Northeast and Southwest Points, 13 miles, air line, and, at points of greatest width, a little less than 6. It has a superficial area of about 33 square miles, 21,120 acres, of diversified, rough, and rocky uplands, rugged hills, and smooth volcanic cones, which either set down boldly to the sea or fade out into extensive wet and mossy flats, passing at the sea-margins into dry, drifting, sand-dune tracts. It has 42 miles of shore line, and of this coast, 16½ miles are hauled over by fur-seals *en masse*. At the time of its first upheaval above the sea, it doubtless presented the appearance of ten or twelve small rocky, bluffy islets and points, upon some of which were craters that vomited breccia and cinders, with little or no lava overflowing. Active plutonic agency must have soon ceased after this elevation, and then the sea around about commenced the work which it is now engaged in, of building on to the skeleton thus created; and it has progressed to-day so thoroughly

* The rise and fall of tide at the Seal Islands I carefully watched one whole season at St. Paul. The irregularity, however, of ebb and flow, is the most prominent feature of the matter. The highest rise in the spring tides was a trifle over 4 feet, while that of the neap tides not much over 2. Owing to the nature of the case, it is impossible to prepare a tidal calendar for Alaska, above the Aleutian Islands, which will even faintly foreshadow a correct registration in advance.

† These surveys have since been confirmed and elaborated by H. W. McIntyre, of the Alaska Commercial Co., and Lieutenant Maynard, U. S. N.

and successfully in its labor of sand-shifting, together with the aid of ice-floes, in their action of grinding, lifting, and shoving, that nearly all of these scattered islets within the present area of the island, and marked by its bluffs and higher uplands, are completely bound together by ropes of sand, changed into enduring bars and ridges of water-worn bowlders. These are raised above the highest tides by winds that whirl the sand up, over, and on them, as it dries out from the wash of the surf and from the interstices of those rocks, lifted up and pushed there by ice-fields.

The sand which plays so important a part in the formation of Saint Paul's Island, and which is almost entirely wanting in and around the others in this Pribylov Group, is principally composed of *foraminifera*, together with *diatomacea*, mixed in with a volcanic base of fine comminuted black and reddish lavas and old friable gray slates. It constitutes the chief beauty of the sea-shore here, for it changes color like a chameleon, as it passes from wet to dry, being a rich steely-black at the surf-margin and then drying out to a soft purplish brown and gray, succeeding to tints most delicate of reddish and pale neutral, when warmed by the sun and drifting up on to the higher ground with the wind. The sand-dune tracts on this island are really attractive in the summer, especially so during those rare days when the sun comes out, and the unwonted light shimmers over them and the most luxuriant grass and variety of beautiful flowers, which exist in profusion thereon. In past time, as these sand and bowlder bars were forming on Saint Paul's Island, they, in making across from islet to islet, inclosed small bodies of sea-water. These have, by evaporation and time, by the flooding of rains and annual melting of snow, become, nearly every one of them, fresh; they are all, great and small, well shown on my map, which locates quite a large area of pure water. In them, as I have hinted, are no reptiles; but an exquisite species of tiny viviparous fish exists in the lagoon estuary near the village, and the small pure-water lakes of the natives just under the flanks of Telegraph Hill. The Aleuts assured me that they had caught fish in the great lake toward Northeast Point, when they lived in their old village out there, but I never succeeded in getting a single specimen. The waters of these pools and ponds are fairly alive with vast numbers of minute *rotifera*, which sport about in all of them whenever they are examined. Many water-plants, pond lilies, &c., and algæ flourish, especially so in the large lake "Mee-sulk-mah-nee," which is very shallow.

The backbone of the island, running directly east and west from shore to shore between Polavina Point and Einahnuhto Hills, constitutes the high land of the island: Polavina Sopka, an old extinct cinder-crater, 550 feet; Bogaslov, an upheaved mass of splinted lava, 600 feet, and the hills frowning over the bluffs there, on the west shore, are also 600 feet in elevation above the sea. But the average height of the upland between is not much over 100 to 150 feet above water-level, rising here and there into little hills and broad rocky ridges, which are minutely sketched upon the map. From the northern base of Polavina Sopka a long stretch of low sand-flats extend, inclosing the great lake, and ending in a narrow neck where it unites with Novastoshnah, or Northeast Point. Here the volcanic nodule known as Hutchinson's Hill, with its low, gradual slopes, trending to the east and southward, makes a rocky foundation secure and broad, upon which the great single rookery of the island, the greatest in the world, undoubtedly, is located. The natives say that when they first came to these islands Novastoshnah was an island by itself, to which they went in boats from Vesolia Mista; and the lagoon now so tightly inclosed was then an open harbor, in which the ships of the old Russian company rode safely at anchor. To-day no vessel drawing 10 feet of water can safely get nearer than half a mile of the village, or a mile from this lagoon at low tide.

LACK OF HARBORS—ANCHORAGES.—The total absence of a harbor at the Pribylov Islands is much to be regretted. The village of Saint Paul, as will be seen by reference to the map, is so

located as to command the best landings for vessels that can be made during the prevalence of any and all winds, except those from the south. From these there is no shelter for ships, unless they run around to the north side, where they are unable to hold practicable communication with the people or to discharge. At Saint George matters are still worse, for the prevailing northerly, westerly, and easterly winds drive the boats away from the village roadstead; and weeks often pass at either island, but more frequently at the latter, ere a cargo is landed at its destination. Under the very best circumstances, it is both hazardous and trying to load and unload ship at any of these places. The approach to Saint Paul by water during thick weather is doubtful and dangerous, for the land is mostly low at the coast, and the fogs hang so dense and heavy over and around the hills as to completely obliterate their presence from vision. The captain fairly feels his way in, by throwing his lead-line and straining his ear to catch the muffled roar of the seal-rookeries, which are easily detected when once understood, high above the booming of the surf. At Saint George, however, the bold, abrupt, bluffy coast everywhere all around, with its circling girdle of flying water-birds far out to sea, looms up quite prominently, even in the fog; or, in other words, the navigator can notice it before he is hard aground or struggling to haul to windward from the breakers under his lee. There are no reefs making out from Saint George worthy of notice, but there are several very dangerous and extended ones peculiar to Saint Paul, which Capt. John G. Baker, in command of the vessel* under my direction, carefully sounded out, and which I have placed upon my chart for the guidance of those who may sail in my wake hereafter.

When the wind blows from the north, northwest, and west to southwest, the company's steamer drops her anchor in 8 fathoms of water abreast of the black bluffs opposite the village, from which anchorage her stores are lightered ashore; but in the northeasterly, easterly, and southeasterly winds, she hauls around to the Lagoon Bay west of the village, and there, little less than half a mile from the landing, she drops her anchor in 9 fathoms of water, and makes considerable headway at discharging the cargo. Sailing craft come to both anchorages, but, however, keep still farther out, though they choose relatively the same positions, but seek deeper water to swing to their cables in; the holding-ground is excellent. At Saint George the steamer comes, wind permitting, directly to the village on the north shore, close in, and finds her anchorage at 10 fathoms of water, over poor holding-ground; but it is only when three or four days have passed free from northerly, westerly, or easterly winds, that she can make the first attempt to safely unload. The landing here is a very bad one, surf breaking most all the year around.

OTTER ISLAND.—The observer will notice that 6 miles to the southward and westward of the reef of Saint Paul's Island is a bluffy islet, called by the Russians Otter Island, because in olden time the Promishlyniks are said to have captured many thousands of sea-otters on its rocky coast. It rises from the ocean, sheer and bold, an unbroken mural precipice of sea front, extending nearly all around, but dropping on its northern margin, at the water, low, and slightly elevated above the surf-wash, with a broken, rocky beach and no sand. The height of the bluffs, at their greatest elevation over the west end, is 300 feet, while the eastern extremity is quite low, and terminated by a queer funnel-shaped crater-hill, which is as distinctly defined, and as plainly scorched, and devoid of the slightest sign of vegetation within, as though it had burned up and out yesterday. This crater point on Otter Island is the only unique feature of the place, for with the exception of this low north shore, before mentioned, where a few thousand of "bachelor" seals haul out during the season every year, there is nothing else worthy of notice concerning it. A bad reef makes

* United States revenue-marine cutter Reliance, June to October, 1874. Captain Baker was and is one of the most thorough-going seamen that it has ever been my good fortune to be associated with. His work can be absolutely relied upon.

out to the westward and northward, which I have indicated from my observation of the rocks awash, looking down upon them from the bluffs. Great numbers of water-fowl roost upon the cliffs, and there are here about as many blue foxes to the acre as the law of life allows. A small, shallow pool of impure water lies close down to the north shore, right under a low hill, upon which the Russians in olden time erected a huge Greek cross, which is still standing; indeed, it was their habit to erect crosses on all the hills in those old times; one of them is standing at Northeast Point, on the huge sand-dune which I have called Saint John, or Cross Hill; and another one, a sound, stalwart stick, yet faces the gale and driving "poorgas" to-day on Boga Slov, as it has faced them for the last sixty years. Otter Island has, since my return in 1872, had considerable attention in the Treasury Department, owing to the fact that certain parties contended that it lies without the jurisdiction of the law which covers and protects the seal-life on the Pribylov Islands. This survey of mine, however, settles that question: the island is within the pale of law. It is a rock adjacent to and in the waters of Saint Paul, and resorted to only by those seals which are born and belong upon the breeding-grounds of Saint Paul and Saint George, and I have never seen at any one time more than three or four thousand "holluschickie" hauled out here.

WALRUS ISLAND.—To the eastward, 6 miles from Northeast Point, will be noticed a small rock named Walrus Island. It is a mere ledge of lava, flat-capped, lifted just above the wash of angry waves; indeed, in storms of great power, the observer, standing on either Cross or Hutchinson's Hills, with a field-glass, can see the water breaking clear over it. These storms, however, occur late in the season, usually in October or November. This island has little or no commercial importance, being scarcely more than a quarter of a mile in length and 100 yards in point of greatest width, with bold water all around, entirely free from reefs or sunken rocks. As might be expected, there is no fresh water on it. In a fog it makes an ugly neighbor for the sea-captains when they are searching for Saint Paul; they all know it, and they all dread it. It is not resorted to by the fur-seals or by sea-lions in particular; but, singularly enough, it is frequented by several hundred male walrus, to the exclusion of females, every summer. A few sea-lions, but only a very few, however, breed here. On account of the rough weather, fogs, etc., this little islet is seldom visited by the natives of Saint Paul, and then only in the egging season of late June and early July; then this surf-beaten rock literally swarms with breeding water-fowl.

This low, tiny, rocky islet is, perhaps, the most interesting single spot now known to the naturalist, who may land in northern seas, to study the habits of bird-life; for here, without exertion or risk, he can observe and walk among tens upon tens of thousands of screaming water-fowl, and as he sits down upon the polished lava rock, he becomes literally ignored and environed by these feathered friends, as they reassume their varied positions of incubation, which he disturbs them from by his arrival. Generation after generation of their kind have resorted to this rock unmolested, and to-day, when you get among them, all doubt and distrust seems to have been eliminated from their natures. The island itself is rather unusual in those formations which we find peculiar to Alaskan waters. It is almost flat, with slight, irregular undulations on top, spreading over an area of five acres, perhaps. It rises abruptly, though low, from the sea, and it has no safe beach upon which a person can land from a boat; not a stick of timber or twig of shrubbery ever grew upon it, though the scant presence of low, crawling grasses in the central portions prevents the statement that all vegetation is denied. Were it not for the frequent rains and dissolving fog, characteristic of summer weather here, the guano accumulation would be something wonderful to contemplate—Peru would have a rival. As it is, however, the birds, when they return, year after year, find their nesting-floor swept as clean as though they had never sojourned there before. The scene of confusion and uproar that presented itself to my astonished senses when I approached

this place in search of eggs, one threatening, foggy June morning, may be better imagined than described, for as the clumsy bidarrah came under the lee of the low cliffs, swarm upon swarm of thousands of murres or "aries" dropped in fright from their nesting-shelves, and before they had control of their flight, they struck to the right and left of me, like so many cannon balls. I was forced, in self-protection, to instantly crouch for a few moments under the gunwale of the boat until the struggling, startled flock passed, like an irresistible, surging wave, over my head. Words cannot depict the amazement and curiosity with which I gazed around, after climbing up to the rocky plateau and standing among myriads of breeding-birds, that fairly covered the entire surface of the island with their shrinking forms, while others whirled in rapid flight over my head, as wheels within wheels, so thickly inter-running that the blue and gray of the sky was hidden from my view. Add to this impression the stunning whir of hundreds of thousands of strong beating wings, the shrill screams of the gulls, and the muffled croaking of the "aries," coupled with an indescribable, disagreeable smell which arose from the broken eggs and other decaying substances, and a faint idea may be evoked of the strange reality spread before me. Were it not for this island and the ease with which the natives can gather, in a few hours, tons upon tons of sea-fowl eggs, the people of the village would be obliged to go to the westward, and suspend themselves over the lofty cliffs of Einahnuhto, dangling over the sea by ropes, as their neighbors are only too glad and willing to do at Saint George.

SAINT PAUL.—A glance at the map of Saint Paul shows that nearly half of its superficial area is low and quite flat, not much elevated above the sea. Wherever the sand-dune tracts are located, and that is right along the coast, is found an irregular succession of hummocks and hillocks drifted by the wind, which are very characteristic. On the summits of these hillocks the *Elymus* has taken root in times past, and as the sand drifts up, it keeps growing on and up, so that the quaint spectacle is presented of large stretches to the view, wherein sand-dunes, entirely bare of all vegetation at their base and on their sides, are crowned with a living cap of the brightest green, a tuft of long, waving grass blades, which will not down. None of this peculiar landscaping, however, is seen on Saint George, not even in the faintest degree. Travel about Saint Paul, with the exception of the road to Northeast Point, where the natives take advantage of the low water to run on the hard, wet sand, is exceedingly difficult walking, and there are examples of only a few white men who have ever taken the trouble and expended the physical energy necessary to accomplish the comparatively short walk from the village to Nahsayvernia, or the north shore. Walking over the moss-hidden and slippery rocks, or tumbling over slightly uncertain tussocks, is a task and not a pleasure. On Saint George, with the exception of a half-mile path to the village cemetery and back, nobody pretends to walk except the natives, who go to and from the rookeries in their regular seal-drives. Indeed, I am told that I am the only white man who has ever traversed the entire coast-line of both islands.

SAINT GEORGE.—Turning to Saint George and its profile, presented by the accompanying map, the observer will be struck at once by the solidity of that little island and its great boldness, rising, as it does, sheer and precipitous from the sea all around, except at the three short reaches of the coast indicated on the chart, and where the only chance to come ashore exists.

The seals naturally have no such opportunity to gain a footing here as they have on Saint Paul, hence their comparative insignificance as to number. The island itself is a trifle over 10 miles in extreme length east and west, and about 4¼ miles of greatest width, north and south. It looks, when plotted, somewhat like an old stone ax; and, indeed, when I had finished my first contours from my field-notes, the ancient stone-ax outline so disturbed me that I felt obliged to resurvey the southern shore, in order that I might satisfy my own mind as to the accuracy of my

first work. It consists of two great plateaus, with a high upland valley between, the western table-land dropping abruptly to the sea at Dalnoi Mees, while the eastern falls as precipitately at Waterfall Head and Tolstoi Mees. There are several little reservoirs of fresh water—I can scarcely call them lakes—on this island; pools, rather, that the wet sphagnum seems to always keep full, and from which drinking-water in abundance is everywhere found. At Garden Cove a small stream, the only one on the Pribylov Group, empties into the sea.

Saint George has an area of about 27 square miles; it has 29 miles of coast-line, of which only 2¼ are visited by the fur-seals, and which is in fact all the eligible landing ground afforded them by the structure of the island. Nearly half of the shore of Saint Paul is a sandy beach, while on Saint George there is less than a mile of it all put together, namely, a few hundred yards in front of the village, the same extent on the Garden Cove beach, southeast side, and less than half a mile at Zapadnie on the south side.

Just above the Garden Cove, under the overhanging bluffs, several thousand sea-lions hold exclusive, though shy, possession. Here there is a half mile of good landing. On the north shore of the island, 3 miles west from the village, a grand bluff wall, of basalt and tufa intercalated, rises abruptly from the sea to a sheer height of 920 feet at its reach of greatest elevation, thence, dropping a little, runs clear around the island to Zapadnie, a distance of nearly 10 miles, without affording a single passage-way up or down to the sea that thunders at its base. Upon its innumerable narrow shelf-margins, and in its countless chinks and crannies, and back therefrom over the extended area of lava-shingled inland ridges and terraces, millions upon millions of water-fowl breed during the summer months.

The general elevation of Saint George, though in itself not great, has, however, an average three times higher than that of Saint Paul, the elevation of which is quite low, and slopes gently down to the sea east and north; Saint George rises abruptly, with exceptional spots for landing. The loftiest summit on Saint George, the top of the hill right back to the southward of the village, is 930 feet, and is called by the natives Ahluckeyak. That on Saint Paul, as I have before said, is Boga Slov Hill, 600 feet. All elevations on either island, 15 or 20 feet above sea-level, are rough and hummocky, with the exception of the sand-dune tracts at Saint Paul and the summits of the Cinder Hills, on both islands. Weathered out or washed from the basalt and pockets of olivine on both islands are aggregates of augite, seen most abundant on the summit slopes of Ahluckeyak Hill, Saint George. Specimens from the stratified bands of old, friable, gray lavas, so conspicuous on the shore of this latter island, show the existence of hornblende and vitreous feldspar in considerable quantity, while on the south shore, near the Garden cove, is a large dike of a bluish and greenish-gray phonolith, in which numerous small crystals of spinal are found. A dike, with well-defined walls of old, close grained, clay-colored lava, is near the village of Saint George, about a quarter of a mile east from the landing, in the face of those reddish breccia bluffs that rise from the sea. It is the only example of the kind on the islands. The bases or foundations of the Pribylov islands are, all of them, basaltic; some are compact and grayish-white, but most of them exceedingly porous and ferruginous. Upon this solid floor are many hills of brown and red tufa, cinder-heaps, &c. Polavina Sopka, the second point in elevation on Saint Paul Island, is almost entirely built up of red scoria and breccia; so is Ahluckeyak Hill, on Saint George, and the cap to the high bluffs opposite. The village hill at Saint Paul, Cone Hill, the Einahnuhto Peaks, Crater Hill, North Hill, and Little Polavina are all ash-heaps of this character. The bluffs at the shore of Polavina Point, Saint Paul, show in a striking manner a section of the geological structure of the island. The tufas on both islands, at the surface, decompose and weather into the base of good soil, which the severe climate, however, renders useless to the husbandman.

There is not a trace of granitic or a gneissic rock found *in situ*. Metamorphic bowlders have been collected along the beaches and pushed up by the ice-floes which have brought them down from the Siberian coast away to the northwest. The dark-brown tufa bluffs and the breccia walls at the east landing of Saint Paul Island, known as "Black Bluffs," rise suddenly from the sea 60 to 80 feet, with stratified horizontal lines of light-gray calcareous conglomerate, or cement, in which are imbedded sundry fossils characteristic of and belonging to the Tertiary age, such as *Cardium grœnlandicum*, *C. decoratum*, *C. astarte*, *C. pectunculata*, &c. This is the only locality within the purview of the Pribylov islands where any paleontological evidence of their age can be found. These specimens, as indicated, are exceedingly abundant. I brought down a whole series, gathered there at the east landing or "Navastock," in a short half-hour's search and labor.

WHY THESE ISLANDS ARE FREQUENTED BY FUR-SEALS.—The fact that the fur-seals frequent these islands and those of Bering and Copper, on the Russian side, to the exclusion of other land, seems at first a little singular, to say the least; but when we come to examine the subject we find that these animals, when they repair hither to rest for two or three months on the land, as they must do by their habit during the breeding season, require a cool moist atmosphere, imperatively coupled with firm, well-drained land, or dry, broken rocks, or shingle rather, upon which to take their positions and remain undisturbed by the weather and the sea for the lengthy period of reproduction. If the rookery ground is hard and flat, with an admixture of loam or soil, puddles are speedily formed in this climate, where it rains almost every day, and when not raining, rain-fogs take quick succession and continue the saturation, making thus a muddy slime, which very quickly takes the hair off the animals whenever it plasters or wherever it fastens on them; hence, they carefully avoid any such landing. If they occupy a sandy shore the rain beats that material into their large, sensitive eyes, and into their fur, so they are obliged, from simple irritation, to leave and hunt the sea for relief.

The seal-islands now under discussion offer to the *Pinnipedia* very remarkable advantages for landing, especially Saint Paul, where the ground of basaltic rock and of volcanic tufa or cement slopes up from so many points gradually above the sea, making thereby a perfectly adapted resting place for any number, from a thousand to millions, of those intelligent animals, which can lie out here from May until October every year in perfect physical peace and security. There is not a rod of this ground of that character offered to these animals elsewhere in all Alaska, not on the Aleutian chain, not on the mainland, not on Saint Matthew or Saint Lawrence. Both of the latter islands were surveyed by myself, with special reference to this query, in 1874; every foot of Saint Matthew shore line was examined, and I know that the fur-seal could not rest on the low clayey lava flats there in contentment a single day; hence he never has rested there, nor will he in the future. As to Saint Lawrence, it is so ice-bound and snow-covered in spring and early summer, to say nothing of numerous other physical disadvantages, that it never becomes of the slightest interest to the seals.

COMMERCIAL IMPORTANCE OF THE ALASKA ROOKERIES.—With the exception of these seal-islands of Bering Sea, there are none elsewhere in the world of the slightest importance to-day; the vast breeding-grounds bordering on the Antarctic have been, by the united efforts of all nationalities—misguided, short-sighted, and greedy of gain—entirely depopulated; only a few thousand unhappy stragglers are now to be seen throughout all that southern area, where millions once were found, and a small rookery protected and fostered by the government of a South American state, north and south of the mouth of the Rio de la Plata. When, therefore, we note the eagerness with which our civilization calls for seal-skin fur, the fact that, in spite of fashion and its caprices, this fur is and always will be an article of intrinsic value and in demand, the thought at

once occurs, that the Government is exceedingly fortunate in having this great amphibious stock-yard far up and away in the quiet seclusion of Bering Sea, from which it shall draw an everlasting revenue, and on which its wise regulations and its firm hand can continue the seals forever.

3. DESCRIPTION OF THE FUR-SEAL ROOKERIES OF SAINT PAUL AND SAINT GEORGE.

DEARTH OF INFORMATION CONCERNING THE ROOKERIES.—Before I can intelligently and clearly present an accurate estimate of the aggregate number of fur-seals which appear upon these great breeding-grounds of the Pribylov group every season, I must take up, in regular sequence, my surveys of these remarkable rookeries which I have illustrated in this memoir by the accompanying sketch-maps, showing topographically the superficial area and distribution assumed by the seal-life at each locality.

It will be observed, that the sum total on Saint Paul Island preponderates, and completely overshadows that which is represented at Saint George. Before passing to the detailed discussion of each rookery, it is well to call attention to a few salient features in regard to the present appearance of the seals on these breeding-grounds. Touching the location of the fur-seals to-day, as I have recorded and surveyed it, compared with their distribution in early times, I am sorry to say that there is not a single line on a chart, or a word printed in a book, or a note made in manuscript, which refers to this all-important subject, prior to my own work, which I present herewith for examination. The absence of definite information in regard to what I conceive to be of vital interest and importance to the whole business, astonished me; I could not at first believe it; and, for four or five years, I searched carefully among the archives of the old Russian company, as I searched diligently when up there, and elsewhere in the Territory of Alaska, for some evidence in contradiction of this statement which I have just made. I wanted to find, I hoped to discover, some old record, some clew, by which I could measure with authority and entire satisfaction to my own mind, the relative volume of seal-life in the past, as compared with that which I record in the present, but was disappointed.

I am unable, throughout the whole of the following discussion, to cite a single reliable statement which can give any idea as to the condition and numbers of the fur-seal on these islands, when they were discovered in 1786–'87, or during the whole time of their occupation since, up to the date of my arrival. I mark this so conspicuously, for it is certainly a very strange oversight, a kind of neglect, which, in my opinion, has been, to say the least, inexcusable.

RUSSIAN RECORDS.—In attempting to form a conception of what the seals were or might have been in those early days, as they spread themselves over the hauling and breeding grounds of these islands, I have been thrown entirely upon the vague statements given to me by the natives and one or two of the first American pioneers in Alaska. The only Russian record which touches upon the subject* contains the remarkable statement, which is, in the light of my survey, simply ridiculous now, that is, that the number of fur-seals on Saint George during the first years of Russian occupation was nearly as great as that on Saint Paul. The most superficial examination of the geological character portrayed on the accompanying maps of the islands will satisfy any unprejudiced mind as to the error of such a statement. Only a mere tithe of the multitudes which

* VENIAMINOV: Zapieskie ob Oonalashkenskaho Otdayla, 2 vols., St. Petersburg, 1842. This work of Bishop Innocent Veniaminov is the only one which the Russians can lay claim to as exhibiting anything like a history of Western Alaska, or of giving a sketch of its inhabitants and resources, that has the least merit of truth, or the faintest stamp of reliability. Without it we should be simply in the dark as to much of what the Russians were about during the whole period of their occupation and possession of that country. Veniaminov died at Moscow, April 22, 1879, æt. 94.

repair to Saint Paul, in perfect comfort, over the 16 to 20 miles of splendid landing-ground found thereon could visit Saint George, when all of the coast-line fit for their reception at this island is a scant 2½ miles; there were afloat, at the time of the beginning of my investigation, a score of equally wild and incredible legends in regard to the rookeries on Saint Paul and Saint George. Finding, therefore, that the whole work must be undertaken *de novo*, I set about it without further delay.

IMMENSE MORTALITY OF THE SEALS IN 1836.—No native on the islands seemed to have any direct knowledge or was acquainted with a legendary tradition even, in relation to the seals, concerning their area and distribution on the land here, prior to the year 1835; but they all chimed in with great unanimity, saying that the winter preceding this season (1835–'36) was one of frightful severity; that many of their ancestors who had lived on these islands in large barraboras just back of the Black bluffs, near the present village, and at Polavina, then perished miserably.

They say that the cold continued far into the summer; that immense masses of clearer and stronger ice-floes than had ever been known about the islands, or were ever seen since, were brought down and shoved high up on to all the rookery margins, forming an icy wall completely around the island looming up 20 to 30 feet above the surf; they further state that this wall did not melt or in any way disappear until the middle or end of August, 1836.

They affirm that for this reason the fur-seals, when they attempted to land, according to their habit and their necessity, during June and July, were unable to do so in any considerable numbers. The females were compelled to bring forth their young in the water and at the wet, storm-beaten surf-margins, which caused multitudes of the mothers and all of the young to perish. The result was virtual annihilation of the breeding-seals. Hence, at the following season, only a spectral, a shadowy imitation of past times could be observed upon the seal-grounds of Saint Paul and Saint George.

On the Lagoon rookery, now opposite the village of Saint Paul, there were then only two males, with a number of cows. At Nah Speel, close by and right under the village, there were then only some 2,000; this the natives know because they counted them. On Zapadnie there were about 1,000 cows, bulls, and pups; at Southwest Point there were none. Two small rookeries were then on the north shore of Saint Paul, near a place called "Maroonitch"; and there were seven small rookeries running round Northeast Point, but on all of these there were only 1,500 males, females, and young; and this number includes the "holluschickie," which, in those days, lay in among the breeding-seals, there being so few old males that they were permitted to do so. On Polavina there were about 500 cows, bulls, pups, and "holluschickie"; on Lukannon and Keetavie about 300; but on Keetavie there were only ten bulls and so few young males lying in altogether, that these old natives, as they told me, took no note of them on the rookeries just cited. On the Reef, in Gorbotch, were only about 1,000; in this number last mentioned may be included some 800 "holluschickie," which lay in with the breeding-seals. There were only twenty old bulls on Gorbotch, and about ten old males on the Reef. The village was placed on its present site ten years prior to this period of 1835–'36.

Such, briefly and succinctly, is the sum and the substance of all information which I could gather prior to 1835–'36; and while I do not entirely credit these statements, yet the earnest, straightforward agreement of the natives has impressed me so that I narrate it here. It certainly seems as though this enumeration of the old Aleuts was painfully short.

Then, again, with regard to the probable truth of the foregoing statement of the natives, perhaps I should call attention to the fact that the entire sum of seal-life in 1836, as given by them, is just 4,100, of all classes, distributed as I have indicated above. Now, on turning to Bishop

Veniaminov, by whom was published the only statement of any kind in regard to the killing on these islands from 1817 to 1837, the year when he finished his work, I find that he makes a record of slaughter of seals in the year 1836, of 4,052, which were killed and taken for their skins; but if the natives' statements are right, then only 50 seals were left on the island for 1837, in which year, however, 4,220 were again killed, according to the bishop's table, according to which there was also a steady increase in the size of this return from that date along up to 1850, when the Russians governed their catch by the market alone, always having more seals than they knew what to do with.

Again, in this connection, the natives say that until 1847, the practice on these islands was to kill indiscriminately both females and males for skins; but after this year, 1847, the strict respect now paid to the breeding-seals, and exemption of all females, was enforced for the first time, and has continued up to date.

Thus it will be seen that there is, frankly stated, nothing to guide to a fair or even an approximate estimate as to the numbers of the fur-seals on these two islands, prior to my labor.

MANNER OF COMPUTING THE NUMBER OF SEALS.—After a careful study of the subject, during three entire consecutive seasons, and a confirmatory review of it in 1876, I feel confident that the following figures and surveys will, upon their own face, speak authoritatively as to their truthful character.

At the close of my investigation, during the first season of my labor on the ground, in 1872, the fact became evident that the breeding-seals obeyed an imperative and instinctive natural law of distribution—a law recognized by each and every seal upon the rookeries, prompted by a fine consciousness of necessity to its own well-being. The breeding-grounds occupied by them were, therefore, invariably covered by seals in exact ratio, greater or less, as the area upon which they rested was larger or smaller. They always covered this ground evenly, never crowding in at one place here, to scatter out there. The seals lie just as thickly together, where the rookery is boundless in its eligible unoccupied area at their rear and by them, as they do in the little strips which are abruptly cut off and narrowed by rocky walls behind. For instance, on a rod of ground, under the face of bluffs which hemmed it in to the land from the sea, there are just as many seals, no more and no less, as will be found on any other rod of rookery-ground throughout the whole list, great and small; always exactly so many seals, under any and all circumstances to a given area of breeding-ground. There are just as many cows, bulls, and pups on a square rod at Nah Speel, near the village, where, in 1874, all told, there were only seven or eight thousand, as there are on any square rod at Northeast Point, where a million of them congregate.

This fact being determined, it is evident that, just in proportion as the breeding-grounds of the fur-seal on these islands expand or contract in area from their present dimensions, the seals will increase or diminish in number.

My discovery, at the close of the season of 1872, of this law of distribution, gave me at once the clew I was searching for in order to take steps by which I could arrive at a sound conclusion as to the entire number of seals herding on the island.

I noticed, and time has confirmed my observation, that the period for taking these boundaries of the rookeries, so as to show this exact margin of expansion at the week of its greatest volume, or when they are as full as they are to be for the season, is between the 10th and 20th of July of every year; not a day earlier, and not many days later. After the 20th of July the regular system of compact, even organization breaks up. The seals then scatter out in pods or clusters, the pups

leading the way, straying far back—the same number instantly covering twice and thrice as much ground as they did the day or week before, when they lay in solid masses and were marshaled on the rookery ground proper.

There is no more difficulty in surveying these seal margins during this week or ten days in July, than there is in drawing sights along and around the curbs of a stone fence surrounding a field. The breeding seals remain perfectly quiet under your eyes all over the rookery, and almost within your touch, everywhere on the outside of their territory that you may stand or walk. The margins of massed life, which I have indicated on the topographical surveys of these breeding grounds of Saint Paul and Saint George, are as clean cut and as well defined against the soil and vegetation as is the shading on my maps. There is not much difficulty in making the surveys, and in making them correctly.

Now, with a knowledge of the superficial area of these breeding grounds, the way is clearly open to a very interesting calculation as to the number of fur seals upon them. I am well aware of the fact, when I enter upon this discussion, that I cannot claim perfect accuracy, but, as shadowing my plan of thought and method of computation, I propose to present every step in the processes which have guided me to the result.

ROOKERY SPACE OCCUPIED BY SINGLE SEALS.—When the adult males and females, fifteen or twenty of the latter to every one of the former, have arrived upon the rookery, I think an area a little less than 2 square feet for each female may be considered as the superficial space required by each animal with regard to its size and in obedience to its habits; and this limit may safely be said to be over the mark. Now, every female, or cow, on this 2 square feet space, doubles herself by bringing forth her young; and in a few days or a week, perhaps, after its birth, the cow takes to the water to wash and feed, and is not back on this allotted space one-fourth of the time again during the season. In this way, is it not clear that the females almost double their number on the rookery grounds, without causing the expansion of the same beyond the limits that would be actually required, did they not bear any young at all? For every 100,000 breeding seals, there will be found more than 85,000 females, and less than 15,000 males; and in a few weeks after the landing of these females, they will show for themselves; that is, for this 100,000, fully 180,000 males, females, and young instead, on the same area of ground occupied previously to the birth of the pups.

It must be borne in mind, that perhaps 10 or 12 per cent. of the entire number of females were yearlings last season, and come up on to these breeding grounds as virgins for the first time during this season—as two-year old cows; they of course bear no young.

The males being treble and quadruple the physical bulk of the females, require about 4 feet square for their use of this same rookery ground, but as they are less than one-fifteenth the number of the females, much less, in fact, they therefore occupy only one-eighth of the space over the breeding ground, where we have located the supposed 100,000; this surplus area of the males is also more than balanced and equalized by the 15,000 or 20,000 virgin females which come on to this rookery for the first time to meet the males. They come, rest a few days or a week, and retire, leaving no young to show their presence on the ground.

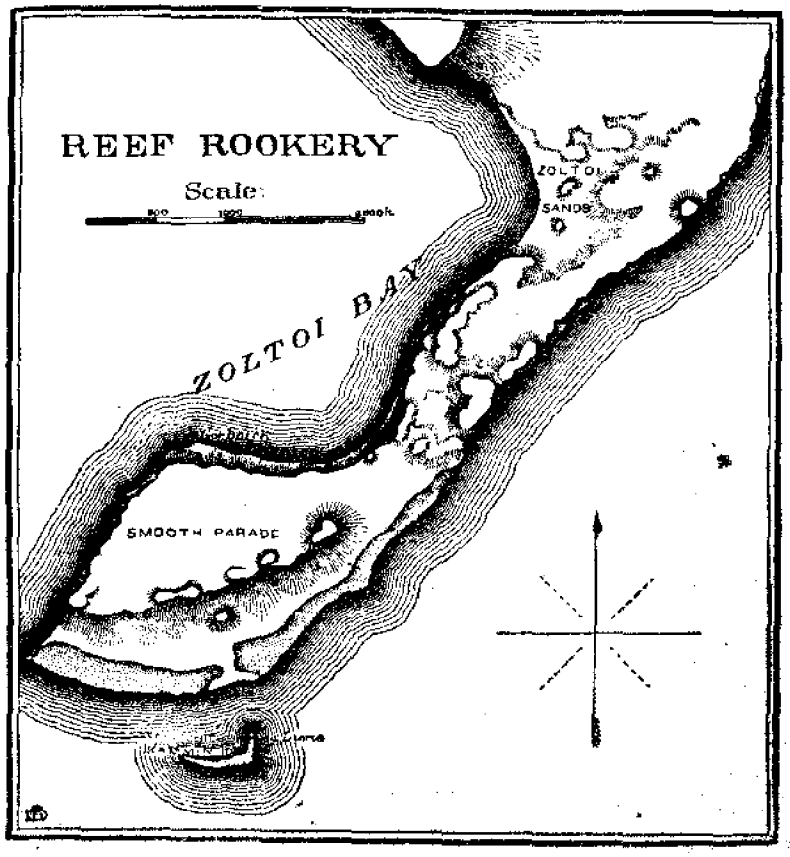
Taking all these points into consideration, and they are features of fact, I quite safely calculate upon an average of 2 square feet to every animal, big and little, on the breeding grounds, as the initial point upon which to base an intelligent computation of the entire number of seals before us. Without following this system of enumeration, a person may look over these swarming myriads between Southwest Point and Novostohnah, guessing vaguely and widely, at any figure from one million up to ten or twelve millions, as has been done repeatedly. How few people know what a

million really is; it is very easy to talk of a million, but it is a tedious task to count it off, and makes one's statements as to "millions" decidedly more conservative after the labor has been accomplished.

REVIEW OF THE ROOKERIES OF SAINT PAUL.

Before summing up the grand total, I shall now, in sequence, review each one of the several rookeries of Saint Paul, taking them in their order as they occur, going north from the Reef point. The accompanying maps show the exact area occupied by the breeding seals and their young in the season of 1874, which is the date of my latest field work on the Pribylov Islands.

THE REEF ROOKERY.—By reference first to the general map, it will be observed that this large breeding-ground, on that grotesquely-shaped neck which ends in the Reef point, is directly contiguous to the village—indeed, it may be fairly said to be right under the lee of the houses on the hill. It is one of the most striking of all the rookeries, owing probably to the fact that on every side it is sharply and clearly exposed to the vision, as the circuit is made in boats. A reach of very beautiful drifting sand, a quarter of a mile from the village hill to the Reef bluffs, separates the breeding grounds proper from the habitations of the people. These Zoltoi sands are, however, a famous rendezvous for the "holluschickie," and from them, during the season, the natives make regular drives, having only to step out from their houses in the morning and walk a few rods to find their fur-bearing quarry.



Passing over the sands on our way down to the point, we quickly come to a basaltic ridge or back-bone, over which the sand has been rifted by the winds, and which supports a luxuriant growth of *Elymus* and other grasses, with beautiful flowers. A few hundred feet further along our course

brings us in full view, as we look to the south, of one of the most entrancing spectacles which seals afford to man. We look down upon and along a grand promenade ground, which slopes gently to the eastward, and trends southward down to the water from the abrupt walls bordering on the sea on the west, over a parade-ground as smooth as the floor of a ball-room, 2,000 feet in length, from 500 to 1,000 feet in width, over which multitudes of "holluschickie" are filing in long strings, or deploying in vast platoons, hundreds abreast, in an unceasing march and countermarch; the breath which rises into the cold air from a hundred thousand hot throats hangs like clouds of white steam in the gray fog itself; indeed, it may be said to be a seal fog peculiar to the spot, while the din, the roar arising over all, defies our description.

We notice to our right and to our left, an immense solid mass of breeding seals at Gorbotch, and those stretching and trending around nearly a mile from our feet, far around to the Reef point below and opposite the parade ground, with here and there a neutral passage is left open for the "holluschickie" to go down and come up from the waves.

The adaptation of this ground of the Reef rookery to the requirements of the seal is perfect. It falls gently from its high Zoltoi Bay margin on the west to the sea on the east; and upon its broad expanse not a solitary puddle of mud-spotting is to be seen, though everything is reeking with moisture, and the fog even dissolves into rain as we view the scene. Every trace of vegetation upon this parade has been obliterated; a few tufts of grass, capping the summits of those rocky hillocks, indicated on the eastern and middle slope, are the only signs of botanical life which the seals have suffered to remain.

A small rock, "Seevitchie Kammin," 500 or 600 feet right to the southward and out at sea, is also covered with the black and yellow forms of fur-seals and sea-lions. It is environed by shoal reefs, rough, and kelp-grown, which the navigators prudently avoid.

This rookery of the Reef proper has 4,016 feet of sea margin, with an average depth of 150 feet, making ground for 301,000 breeding seals and their young. Gorbotch rookery has 3,660 feet of sea margin, with an average depth of 100 feet, making ground for 183,000 breeding seals and their young; an aggregate for this great Reef rookery of 484,000 breeding seals and their young. Heavy as this enumeration is, yet the aggregate only makes the Reef rookery third in importance, compared with the others which we are yet to describe.

LAGOON ROOKERY.—We now pass from the Reef up to the village, where one naturally would not expect to find breeding seals within less than a pistol-shot from the natives' houses; but it is a fact, nevertheless, for on looking at the sketch map of the Lagoon rookery herewith presented, it will be noticed that I have located a little gathering of breeding seals right under the village hill to the westward of that place called "Nah Speel." This is in itself an insignificant rookery and never has been a large one, though it is one of the oldest on the island. It is only interesting, however, superficially so, on account of its position, and the fact that through every day of the season half the population of the entire village go and come to the summit of the bluff, which overhangs it, where they peer down for hours at a time upon the methods and evolutions of the "kantickie" below, the seals themselves looking up with intelligent appreciation of the fact that, though they are in the hands of man, yet he is wise enough not to disturb them there as they rest.

If at Nah Speel, or that point rounding into the village cove, there were any suitable ground for a rookery to grow upon or spread over, the seals would doubtless have been there long ago. There are, however, no such natural advantages offered them; what there is they have availed themselves of.

Looking from the village across the cove and down upon the Lagoon, still another strange contradiction appears—at least it seems a natural contradiction to one's usual ideas. Here we see

the Lagoon rookery, a reach of ground upon which some twenty-five or thirty thousand breeding seals come out regularly every year during the appointed time, and go through their whole elaborate system of reproduction, without showing the slightest concern for or attention to the scene directly east of them and across that shallow slough not forty feet in width. There are the great slaughtering fields of Saint Paul Island; there are the sand flats where every seal has been slaughtered for years upon years back, for its skin; and even as we take this note, forty men are standing there knocking down a drove of two or three thousand "holluschickie" for the day's work, and as they labor, the whacking of their clubs and the sound of their voices must be as plain to those breeding seals which are not one hundred feet from them, as it is to us, a quarter of a mile distant. In addition to this enumeration of disturbances, well calculated to amaze, and dismay, and drive off every seal within their influence, are the decaying bodies of the last year's catch, 75,000 or 85,000 unburied carcasses, that are sloughing away into the sand, which two or three seasons from now nature will, in its infinite charity, cover with the greenest of all green grasses. The whitened bones and grinning skulls of over 3,000,000 seals have bleached out on that slaughtering spot, and are buried below its surface now.

Directly under the north face of the Village Hill, where it falls to the narrow flat between its feet and the cove, the natives have sunk a well. It was excavated in 1857, they say, and subsequently deepened to its present condition in 1868. It is 12 feet deep, and the diggers said that they found bones of the sea-lion and fur-seal thickly distributed every foot down, from top to bottom; how much lower these osteological remains of prehistoric pinnipeds can be found, no one knows as yet; the water here, on that account, has never been fit to drink, or even to cook with; but being soft, was and is used by the natives for washing clothes, etc. Most likely it records the spot where the Russians, during the heydays of their early occupation, drove the unhappy visitors of Nah Speel to slaughter. There is no Golgotha known to man elsewhere in the world as extensive as this one of Saint Paul.

Yet the natives say that this Lagoon rookery is a new feature in the distribution of the seals; that when the people first came there and located a part of the present village, in 1824 up to 1847, there never had been a breeding seal on that Lagoon rookery of to-day; so they have hauled up here from a small beginning, not very long ago, until they have attained their present numerical expansion, in spite of all these exhibitions of butchery of their kind, executed right under their eyes, and in full knowledge of their nostrils, while the groans and low moanings of their stricken species stretched out beneath the clubs of the sealers, must have been and are far plainer in their ears than they are in our own.

Still they come—they multiply, and they increase—knowing so well that they belong to a class which intelligent men never molest; to-day at least they must know it, or they would not submit to these manifestations which we have just cited, so close to their knowledge.

The Lagoon rookery, however, never can be a large one on account of the very nature of the ground selected by the seal; for it is a bar simply pushed up above the surf wash of bowlders, water-worn and rounded, which has almost inclosed and cut out the Lagoon from its parent sea. In my opinion the time is not far distant when that estuary will be another inland lake of Saint Paul, walled out from salt water and freshened by rain and melting snow, as are the other pools, lakes, and lakelets on the island.

LUKANNON AND KEETAVIE ROOKERIES.—The next rookeries in order can be found at Lukannon and Keetavie. Here is a joint blending of two large breeding grounds, their continuity broken by a short reach of sea wall right under and at the eastern foot of Lukannon Hill. The appearance of these rookeries is like all the others, peculiar to themselves. There is a rounded,

swelling hill at the foot of Lukannon Bay, which rises perhaps 160 or 170 feet from the sea, abruptly at the point, but swelling out, gently up from the sand dunes in Lukannon Bay to its summit at the northwest and south. The great rookery rests upon the northern slope. Here is a beautiful adaptation of the finest drainage, with a profusion of those rocky nodules scattered everywhere over it, upon which the female seals so delight in resting.

Standing on the bald summit of Lukannon Hill, we turn to the south, and look over Keetavie Point, where another large aggregate of breeding rookery rests under our eyes. The hill falls away into a series of faintly terraced tables, which drop down to a flat that again abruptly descends to the sea at Keetavie Point. Between us and the Keetavie rookery is the parade ground of Lukannon, a sight almost as grand as that on the reef which we have feebly attempted to portray. The sand dunes to the west and to the north are covered with the most luxuriant grass, abruptly emarginated by the sharp abrasion of the hauling seals; this is shown very clearly on the general map. Keetavie Point is a solid basalt shelf. Lukannon Hill, the summit of it, is composed of volcanic tufa and cement, with irregular cubes and fragments of pure basalt scattered all over its flipper-worn slopes. Lukannon proper has 2,270 feet of sea margin, with an average depth of 150 feet, making ground for 170,000 breeding seals and their young. Keetavie rookery has 2,200 feet of sea margin, with an average depth of 150 feet, making ground for 165,000 breeding seals and their young, a whole aggregate of 335,000 breeding seals and their young. This is the point down along the flat shoals of Lukannon Bay, where the sand dunes are most characteristic, as they rise in their wind-whirled forms just above the surf wash. This also is where the natives come from the village during the early mornings of the season, for driving, to get any number of "holluschickie" or "bachelor" seals.

It is a beautiful sight, glancing from the summit of this great rookery hill, up to the north over that low reach of coast to Tonkie Mees, where the waves seem to roll in with crests that rise in unbroken ridges for a mile in length each, ere they break so grandly and uniformly on the beach. In these rollers the "holluschickie" are playing like sea birds, seeming to sport the most joyously at the very moment when the heavy billow breaks and falls upon them.

TOLSTOI ROOKERY.—Directly to the west from Lukannon, up along and around the head of the lagoon, is the sealpath-road over which the natives bring the "holluschickie" from Tolstoi. We follow this and take up our position on several lofty grass-grown dunes close to and overlooking another rookery of large size; this is Tolstoi.

We have here the greatest hill slope of breeding seals on either island, peculiarly massed on the abruptly sloping flanks of Tolstoi ridge, as it falls to the sands of English Bay, and ends suddenly in the precipitous termination of its own name, Tolstoi Point. Here the seals are in some places crowded up to the enormous depth of 500 measured feet, from the sea margin of the rookery to its outer boundary and limitation; and, when viewed as I viewed it in July, taking the angles and lines shown on the accompanying sketch-map, I considered it, with the bluffs terminating it at the south, and its bold sweep, which ends on the sands of English Bay, to be the most picturesque, though it is not the most impressive, rookery on the island, especially when that parade ground, lying just back and over the point, and upon its table-rock surface, is reached by the climbing seals.

If the observer will glance at the map, he will see that the parade ground in question lies directly over and about 150 feet above the breeding seals immediately under it. The sand-dune tracts which border the great body of the rookery seem to check these holluschickie from hauling to the rear, since sand drifts here, in this locality so high and exposed to the full force of winds, with more rapidity, and consequently more disagreeable energy to the seal, than anywhere else on the island.

A comical feature of this rookery is that appearance of blue foxes in the chinks under this parade ground and interstices of the cliffs; their melancholy barking and short yelps of astonishment, as we walk about, contrast quite sensibly with the utter indifference of the seals to our presence.

From Tolstoi at this point, sweeping around 3 miles to Zapadnie, is the broad sand reach of English Bay, upon which and back over its gently rising flats are the great hauling grounds of the holluschickie, which I have indicated on the general map, and to which I made reference in a previous section of this chapter. Looking at the myriads of "bachelor seals" spread out in their restless hundreds and hundreds of thousands upon this ground, one feels the utter impotency of verbal description, and reluctantly shuts his note and sketch books to gaze upon it with renewed fascination and perfect helplessness.

Tolstoi rookery has attained, I think, its utmost limit of expansion. The seals have already pushed themselves as far out upon the sand at the north as they can or are willing to go, while the abrupt cliffs, hanging over more than one-half of the sea margin, shut out all access to the rear for the breeding seals. The natives said that this rookery had increased very much during the last four or five years prior to the date of my making the accompanying survey. If it continues to increase, the fact can be instantly noted, by checking off the ground and comparing it with the sketch map herewith presented. Tolstoi rookery has 3,000 feet of sea margin, with an average depth of 150 feet, making ground for 225,000 breeding seals and their young.

ZAPADNIE ROOKERY.—From Tolstoi, before going north, we turn our attention directly to Zapadnie on the west, a little over 2 miles as the crow flies, across English Bay, which lies between them. Here again we find another magnificent rookery, with features peculiar to itself, consisting of great wings separating one from the other, by a short stretch of 500 or 600 feet of the shunned sand reach, which makes a landing and a beach just between them. The northern Zapadnie lies mostly on the gently sloping, but exceedingly rocky, flats of a rough volcanic ridge which drops there to the sea. It, too, has an approximation to the Tolstoi depth, but not to such a solid extent. It is the one rookery which I have reason to believe has sensibly increased since my first survey in 1872. It has overflowed from the boundary which I laid down at that time, and has filled up for nearly half a mile, a long ribbon-like strip of breeding ground to the northeast from the hill slope, ending at a point where a few detached rocks jut out, and the sand takes exclusive possession of the rest of the coast. These rocks aforesaid are called by the natives "Nearhpahskie kammin," because they are a favorite resort for the hair-seals. Although this extension of a quite decided margin of breeding ground, over half a mile in length, between 1872 and 1876, does not, in the aggregate, point to a very large increased number, still it is gratifying evidence that the rookeries, instead of tending to diminish in the slightest, are more than holding their own.

Zapadnie, in itself, is something like the reef plateau on its eastern face, for it slopes up gradually and gently to the parade plateau on top—a parade ground not so smooth, however, being very rough and rocky, but which the seals enjoy. Just around the point, a low reach of rocks and beach connects it with the ridge walls of Southwest Point. A very small breeding rookery, so small that it is not worthy of a survey, is located here. I think, probably, on account of the nature of the ground, that it will never hold its own, and is more than likely abandoned by this time.

One of the prehistoric villages, the village of Pribylov's time, was established here between this point and the cemetery ridge on which the northern wing of Zapadnie rests. The old burying ground, with its characteristic Russian crosses and faded pictures of the saints, is plainly

marked on the ridge. It was at this bight of sandy landing that Pribylov's men first came ashore and took possession of the island, while others in the same season proceeded to Northeast Point and to the north shore, to establish settlements of their own order. When the indiscriminate sealing of 1868 was in progress, one of the parties lived here, and a salt-house which was then erected by them still stands; it is in a very fair state of preservation, although it has never been since occupied, except by the natives who come over here from the village in the summer to pick the berries of the *Empetrum* and *Rubus*, which abound in the greatest profusion around the rough and rocky flats that environ the little adjacent lake. The young people of Saint Paul are very fond of this berry festival, so-called among themselves, and they stay here every August, camping out a week or ten days at a time, before returning to their homes in the village.

Zapadnie rookery has, the two wings included, 5,880 feet of sea margin, with an average depth of 150 feet, making ground for 441,000 breeding seals and their young, being the second rookery on the island as to size and importance.

The holluschickie that sport here on the parade plateau, and indeed over all of the western extent of the English Bay hauling grounds, have never been visited by the natives for the purpose of selecting killing drives since 1872, inasmuch as more seals than were wanted have always been procured from Zoltoi, Lukannon, and Lower Tolstoi Points, which are all very close to the village. I have been told, since making this survey, that during the past year the breeding seals of Zapadnie have overflowed, so as to occupy all of the sand strip which is vacant between them on the accompanying map.

POLAVINA ROOKERY.—Half way between the village and Northeast Point lies Polavina, another one of the seven large breeding grounds on this island. The conspicuous cone-shaped head of Polavina Sopka rises clearly cut and smooth from the plateau at its base, which falls 2 miles to the eastward and southeastward, sharp off into the sea, presenting a bluff margin over a mile in length, at the base of which the sea thunders incessantly. It exhibits a very beautiful geological section of the simple structure of Saint Paul. The ringing, iron-like basaltic foundations of the island are here setting boldly up from the sea to a height of 40 or 50 feet—black and purplish-red, polished like ebony by the friction of the surf, and worn by its agency into grotesque arches, tiny caverns, and deep fissures. Surmounting this lava bed is a cap of ferruginous cement and tufa, from 3 to 10 feet in thickness, making a reddish floor, upon which the seals patter in their restless, never-ceasing evolutions, sleeping or waking, on the land. It is as great a single parade plateau of polished cement as that of the Reef, but we are unable from any point of observation to appreciate it, inasmuch as we cannot stand high enough to overlook it, unless we ascend Polavina Sopka, and then the distances, with the perspective fore-shortening, destroy the effect.

The rookery itself occupies only a small portion of the seal-visited area at this spot. It is placed at the southern termination and gentle sloping of the long reach of bluff wall, which is the only cliff between Lukannon and Novastoshnah. It presents itself to the eye, however, in a very peculiar manner, and with great scenic effect, when the observer views it from the extreme point of its mural elevation; scanned from thence, nearly a mile to the northeast, it rises as a front of bicolored lava wall, high above the sea that is breaking at its base, and is covered with an infinite detail of massed seals in reproduction; at first sight, one wonders how they got there. No passages whatever can be seen, down or up. A further survey, however, discloses the common occurrence of rain-water-runs between surf-beaten crevices, which make many stairways for the adhesive feet of *Callorhinus*, amply safe and comfortable.

For the reason cited in a similar example at Zapadnie, no "holluschickie" have been driven from this point since 1872, though it is one of the easiest worked. It was in the Russian times a

pet sealing ground with them. The remains of the old village have nearly all been buried in the sand near the lake, and there is really no mark of its early habitation, unless it be the singular effect of a human graveyard being dug out and despoiled by the attrition of seal bodies and flippers. The old cemetery just above and to the right of the barrabkie, near the little lake, was originally established, so the natives told me, far away from the hauling of the "holluscuickie." It was, when I saw it in 1876, in a melancholy state of ruin—a thousand young seals at least moved off from its suface as I came up, and they had actually trampled out many sandy graves, rolling the bones and skulls of Aleutian ancestry in every direction. Beyond this old barrabkie, which the present natives established as a house of refuge during the winter when they were trapping foxes, looking to the west over the lake, is a large expanse of low, flat swale and tundra, which is terminated by the rocky ridge of Kaminista; every foot of it has been placed there subsequent to the original elevation of the island by the action of the sea, beyond all question. It is covered with a thick growth of the rankest sphagnum, which quakes and trembles like a bog under one's feet, but over which the most beatiful mosses ever and anon crop out, including the characteristic floral display before referred to in speaking of the island; most of the way from the village up to Northeast Point, as will be seen by a cursory glance at the map, with the exception of this bluff of Polavina and the terraced table setting back from its face to Polavina Sopka, the whole island is slightly elevated above the level of the sea, and its coast line is lying just above and beyond the reach of the surf, where great ridges of sand have been piled up by the wind, capped with sheafs and tufts of rank-growing *Elymus*.

There is a small rookery, which I call "Little Polavina" indicated here, that does not promise much for the future; the sand cuts it off on the north, and sand has blown around so at its rear as to make all other ground not now occupied by the breeding seals there quite ineligible. Polavina rookery has 4,000 feet of sea margin, including Little Polavina, with 150 feet of average depth, making ground for 300,000 breeding seals and their young.

NORTHEAST POINT OR NOVASTOSHNAH ROOKERY.—Though this is the last of the Saint Paul rookeries which I notice, yet it is so much greater than any other one on the island, or two others for that matter, that it forms the central feature of Saint Paul, and in truth presents a most astonishing and extraordinary sight. It was a view of such multitudes of amphibians, when I first stood upon the summit of Hutchinson Hill, and looked at the immense spread around me, that suggested to my mind a doubt whether the accurate investigation which I was making would give me courage to maintain the truth in regard to the subject.

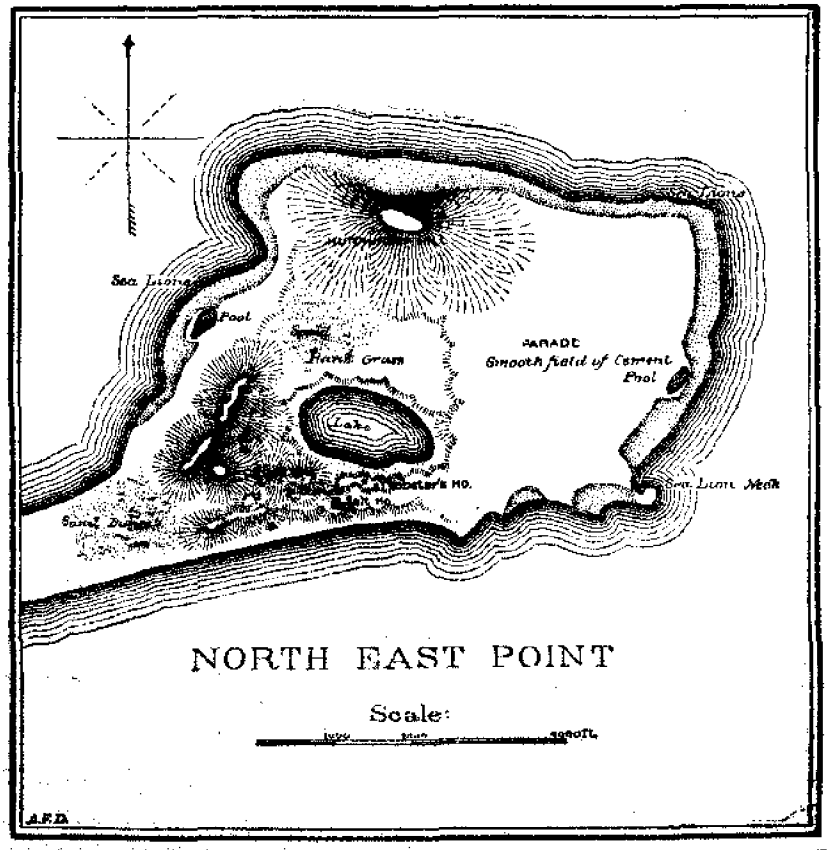
The result of my first survey here presented such a startling array of superficial area massed over by the breeding seals, that I was fairly disconcerted at the magnitude of the result. It troubled me so when my initial plottings were made, and I had worked them out so as to place them tangibly before me, that I laid the whole preliminary survey aside, and seizing upon the next favorable day went over the entire field again. The two plats then, laid side by side, substantially agreed, and I now present the great rookery to the public. It is in itself, as the others are, endowed with its own particular physiognomy, having an extensive sweep, everywhere surrounded by the sea, except at that intersection of the narrow neck of sand which joins it to the main land. Hutchinson Hill is the foundation of the point, a solid basaltic floor, upon which a mass of breccia has been poured at its northwest corner, which is so rough, and yet polished so highly by the countless pattering flippers of its visitors as to leave it entirely bare and bald of every spear of grass or trace of cryptogamic life. The hill is about 120 feet high; it has a rounded summit flecked entirely over by the "holluschickie," while the great belt of breeding rookery sweeps high up on its flanks, and around right and left, for nearly 3½ miles unbroken, an amazing sight in its aggregate, and infinite in its detail.

The picturesque feature, also, of the rookery here, is the appearance of the tawny, yellowish bodies of several thousand sea-lions,* which lay in and among the fur-seals at the several points designated on the sketch-map, though never far from the water. Sea-Lion Neck, a little tongue of low basaltic jutting, is the principal corner where the natives take these animals from when they capture them in the fall for their hides and sinews.

Cross, or Saint John's, Hill, which rises near the lake, to a height of 60 or 70 feet, and quite a landmark in itself, is a perfect cone of sand entirely covered with a luxuriant growth of *Elymus*. It is growing constantly higher by the fresh sand deposit brought by winds, and its retention by the annually rising grasses.

At this point, it will be noticed, there is a salt-house, and here is the killing ground for North-east Point, where nineteen or twenty thousand "holluschickie" are disposed of for their skins every season, their carcasses being spread out on the sand dunes between the foot of Cross Hill and Webster's house; a squad of sealers live there during the three or four weeks that they are engaged in the work. The "holluschickie" are driven from the large hauling grounds on the sand flats immediately adjacent to the killing grounds, being obtained without the slightest difficulty.

There also was the site of a village, once the largest one on this island ere its transfer to the sole control and charge of the old Russian-American Company, ten years after its discovery in 1786. The ancient cemetery and the turf lines of the decayed barraboras are still plainly visible.



*The sea-lions breed on no one of the rookeries at this island, the insignificant number that I noticed on Seevitchie Kammin excepted. At Southwest Point, however, I found a small sea-lion rookery, but there are no breeding fur-seals there. A handful of *Eumetopias* used to breed on Otter Island, but do not now since it has been necessary to station Government agents there, for the apprehension of fur-seal pirates, during the sealing season.

The company's steamer runs up here, watching her opportunity, and drops her anchor, as indicated on the general chart, right south of the salt house, in about 4 fathoms of water; then the skins are invariably hustled aboard, no time being lost, because it is an exceedingly uncertain place to load.

There is no impression in my mind to-day more vivid than is the one which was planted there during the afternoon of that July day, when I first made my survey of this ground; indeed, while I pause to think of the subject the great rookery of Novastoshnah rises promptly to my view, and I am fairly rendered dumb as I try to speak definitely of the spectacle. In the first place, this slope from Sea Lion Neck to the summit of Hutchinson's Hill is a sheer mile, smooth and gradual from the sea to the hill top; the parade ground lying between is also nearly three-quarters of a mile in width, sheer and unbroken. Now, upon that area before my eyes, this day and date of which I have spoken, were the forms of not less than three-fourths of a million seals—pause a moment—think of the number, three-fourths of a million seals engaged in moving in one solid mass from sleep to frolicksome gambols, backward, forward, over, around, changing and interchanging their heavy squadrons, until the whole mind is so confused and charmed by the vastness of mighty hosts that it refuses to analyze any further. Then, too, I remember that the day was one of exceeding beauty for that region; it was a swift alternation overhead of those characteristic rain fogs, between the succession of which the sun breaks out with transcendant brilliancy through the foggy halos about it; this parade field reflected the light like a mirror, and the seals, when they broke apart here and there for a moment, just enough to show its surface, seemed as though they walked upon the water. What a scene to put upon canvas, that amphibian host involved in those alternate rainbow lights and blue-gray shadows of the fog!

RECAPITULATION OF THE ESTIMATES OF NUMBER OF SEALS.—Below is a recapitulation of the figures made from my surveys of the area and position of the breeding grounds of Saint Paul Island between the 10th and 18th of July, 1872, confirmed and revised at that date in 1874. It is the first survey ever made on the island of its rookeries.

BREEDING-GROUNDS OF THE FUR-SEAL, SAINT PAUL ISLAND.	Number of seals, male, female, and young.
"Reef rookery" has 4,016 feet of sea margin, with 150 feet of average depth, making ground for	301,000
"Gorbotch rookery" has 3,660 feet of sea margin, with 100 feet of average depth, making ground for	183,000
"Lagoon rookery" has 750 feet of sea margin, with 100 feet of average depth, making ground for	37,000
"Nah Speel rookery" has 400 feet of sea margin, with 40 feet of average depth making ground for	8,000
"Lukannon rookery" has 2,270 feet of sea margin, with 150 feet of average depth, making ground for	170,000
"Koetavie rookery" has 2,200 feet of sea margin, with 150 feet of average depth, making ground for	165,000
"Tolstoi rookery" has 3,000 feet of sea margin, with 150 feet of average depth, making ground for	225,000
"Zapadnie rookery" has 5,880 feet of sea margin, with 150 feet of average depth, making ground for	441,000
"Polavina rookery" has 4,000 feet of sea margin, with 150 feet of average depth, making ground for	300,000
"Novastoshnah or Northeast point" has 15,840 feet of sea margin, with 150 feet of average depth, making ground for	1,200,000
A grand total of breeding seals and young for St. Paul Island in 1874 of	3,030,000

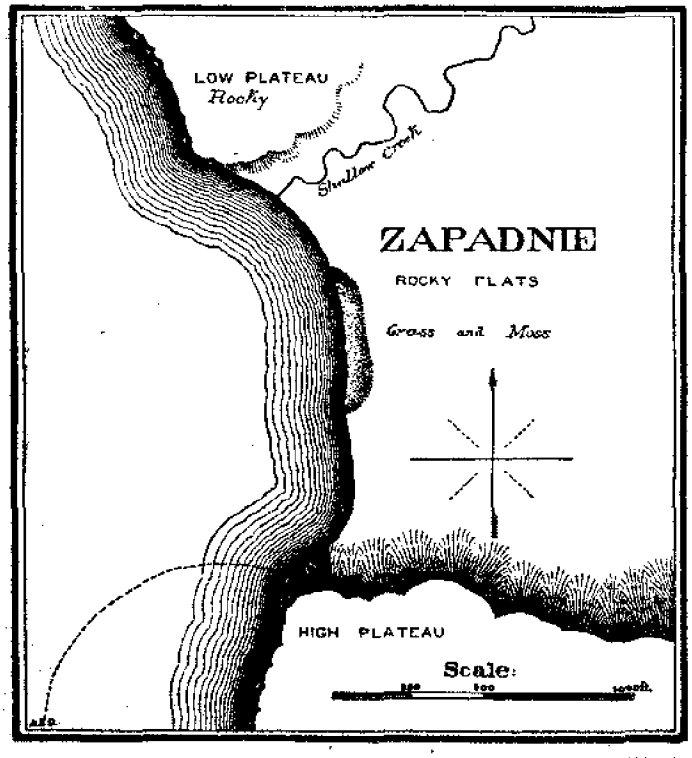
THE ROOKERIES OF SAINT GEORGE.

Saint George is now in order, and this island has only a trifling contribution for the grand total of the seal life; but though small, nevertheless it is of much value and interest. Certainly Pribylov, not knowing of the existence of Saint Paul, was as well satisfied as if he had possessed the boundless universe, when he first found it. As in the case of Saint Paul Island, I have been unable to learn much here in regard to the early status of the rookeries, none of the natives having any real information. The drift of their sentiment goes to show that there never was a great assemblage of

fur-seals on Saint George; in fact, never as many as there are to-day, insignificant as the exhibit is, compared with that of Saint Paul. They say that, at first, the sea-lions owned this island, and that the Russians, becoming cognizant of the fact, made a regular business of driving off the "seevitchie," in order that the fur-seals might be encouraged to land.* Touching this statement, with my experience on Saint Paul, where there is no conflict at all between the fifteen or twenty thousand sea-lions which breed around on the outer edge of the seal-rookeries there, and at Southwest Point, I cannot agree to the Saint George legend. I am inclined to believe, however, indeed it is more than probable, that there were a great many more sea-lions on and about Saint George before it was occupied by man—a hundredfold greater, perhaps, than now; because a sea-lion is an exceedingly timid, cowardly creature when it is in the proximity of man, and will always desert any resting place where it is constantly brought into contact with man.

The scantiness of the Saint George rookeries is due to the configuration of the island itself. There are five separate, well-defined rookeries on Saint George, as follows:

ZAPADNIE ROOKERY.—Directly across the island, from its north shore to Zapadnie Bay, a little over 3 miles from the village, is a point where the southern bluff walls of the island turn



* This statement of the natives has a strong circumstantial backing by the published account of Choris, a French gentleman of leisure, and amateur naturalist and artist, who landed at Saint George in 1820 (July); he passed several days off and on the land; he wrote at short length in regard to the sea-lion, saying "that the shores were covered with innumerable troops of sea-lions. The odor which arose from them was insupportable. These animals were all the time rutting," &c., yet nowhere does he speak in the chapter, or elsewhere in his volume, of the fur-seal on Saint George, but incidentally remarks that over on Saint Paul it is the chief animal and most abundant. Although this writing of Choris in regard to the subject is brief, superficial, and indefinite, yet I value the record he made, because it is *prima facie* evidence, to my mind, that had the fur-seal been nearly as numerous on Saint George then as it was on Saint Paul, he would have spoken of the fact surely, inasmuch as he was searching for just such items with which to illuminate his projected book of travels. The old Russian record as to the relative number of fur-seals on the two islands of Saint George and Saint Paul is clearly as palpably erroneous for 1820, as I found it to be in 1872, 1873. No intelligent steps toward ascertaining that ratio were ever taken until I made my survey.—*Voyage Pittoresque autour du Monde, Iles Aléoutiennes*, pp. 12, 13, pl. xiv. 1822.

north, and drop quickly down from their lofty elevation in a succession of heavy terraces, to an expanse of rocky flat, bordered by a sea sand beach; just between the sand beach, however, and these terraces, is a stretch of about 2,000 feet of low, rocky shingle, which borders the flat country back of it, and upon which the surf breaks free and boldly. Midway between the two points is the rookery; and a small detachment of it rests on the direct sloping of the bluff itself, to the southward; while in and around the rookery, falling back to some distance, the "holluschickie" are found.

A great many confusing statements have been made to me about this rookery—more than in regard to any other on the islands. It has been said, with much positiveness, that, in the times of the Russian rule, this was an immense rookery for Saint George; or, in other words, it covered the entire ground between that low plateau to the north and the high plateau to the south, as indicated on the map; and it is also cited in proof of this that the main village of the island, for many years, thirty or forty, was placed on or near the limited drifting sand dune tracts just above the plateau, to the westward. Be the case as it may, it is certain that for a great, great many years back, no such rookery has ever existed here. When seals have rested on a chosen piece of ground to breed, they wear off the sharp edges of fractured basaltic bowlders, and polish the breccia and cement between them so thoroughly and so finely that years and years of chiseling by frost, and covering by lichens, and creeping of mosses, will be required to efface that record. Hence I was able, acting on the suggestion of the natives at Saint Paul, to trace out those deserted fur-seal rookeries on the shores of that island. At Maroonitch, which had, according to their account, been abandoned for over sixty years by the seals, still, at their prompting, when I searched the shore, I found the old boundaries tolerably well defined; I could find nothing like them at Zapadnie.

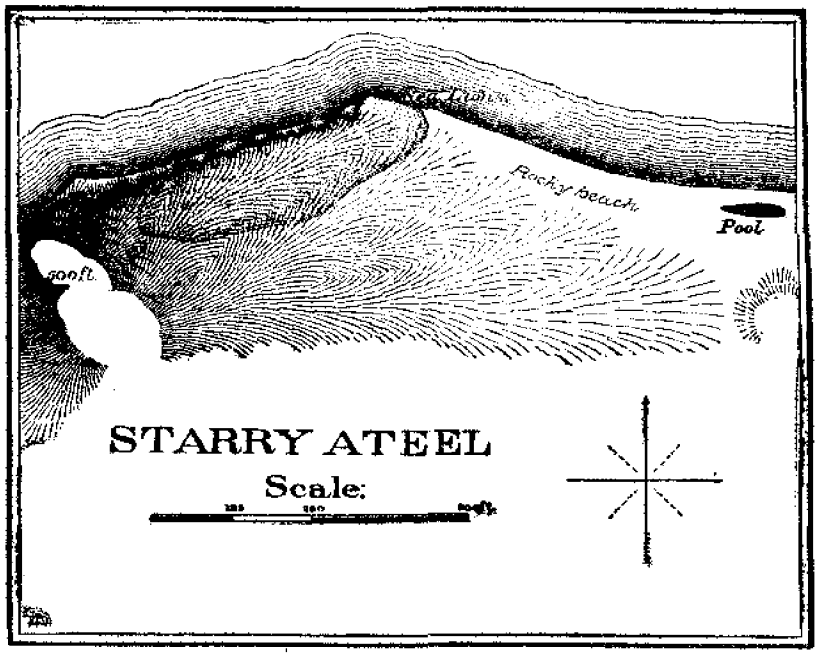
Zapadnie rookery in July, 1873, had 600 feet of sea margin, with 60 feet of average depth, making ground for 18,000 breeding seals and their young. In 1874 I resurveyed the field, and it seemed very clear to me that there had been a slight increase, perhaps to the number of 5,000 according to the expansion of the superficial area over that of 1873.

From Zapadnie we pass to the north shore, where all the other rookeries are located, with the village at a central point between them on the immediate border of the sea. And, in connection with this point, it is interesting to record the fact that every year, until recently, it has been the regular habit of the natives to drive the "holluschickie" over the 2½ or 3 miles of rough basaltic uplands which separate the hauling ground of Zapadnie from the village; driving them to the killing grounds there, in order to save the delay and trouble generally experienced in loading these skins in the open bay. The prevailing westerly and northwesterly winds during July and August make it, for weeks at a time, a marine impossibility to effect a landing at Zapadnie, suitable for the safe transit of cargo to the steamer.

This three miles of the roughest of all rough walks that can be imagined, is made by the fur-seals in about seven or eight hours, when driven by the Aleuts; and, the weather is cool and foggy. I have known one Treasury agent, who, after making the trip from the village to Zapadnie, seated himself down in the barrabkie there, and declared that no money would induce him to walk back the same way that same day, so severe is the exercise to one not accustomed to it; but it exhibits the power of land-locomotion possessed by the "holluschickie."*

* The peculiarly rough character to this trail is given by the large, loose, sharp-edged basaltic bowlders, which are strewn thickly over all those lower plateau that bridge the island between the high bluffs at Starry Ateel and the slopes of the Ahluckeyak Hill. The summits of the two broader, higher plateaus, east and west, respectively, are comparatively smooth and easy to travel over; and so is the sea-level flat at Zapadnie itself. On the map of Saint George, a number of very small ponds will be noticed; they are the fresh-water reservoirs of the island. The two largest of these are near the summit of this rough divide; the seal trail from Zapadnie to the village runs just west of them, and comes out on the north shore, a little to the eastward of the hauling grounds of Starry Ateel, where it forks and unites with that path. The direct line between the village and Zapadnie, though nearly a mile shorter on the chart, is equal to 5 miles more of distance by reason of its superlative rocky inequalities.

STARRY ARTEEL *.—This rookery is the next in order, and it is the most remarkable one on Saint George, lying as it does in one bold sweep from the sea, up a steeply inclined slope to a point where the bluffs that border it seaward are over 400 feet high; the seals being just as closely crowded at the summit of this lofty breeding plat as they are at the water's edge; the whole oblong oval on the side hill, as designated by the accompanying survey, is covered by their thickly clustered forms. It is a strange sight, also, to sail under these bluffs with the boat, in fair weather, for



a landing; and, as you walk the beach, over which the cliff wall frowns a sheer 500 feet, there, directly over your head, the craning necks and twisting forms of the restless seals, ever and anon, as you glance upward, appear as if ready to launch out and fall below, so closely and boldly do they press the very edge of the precipice.† There is a low, rocky beach to the eastward of this

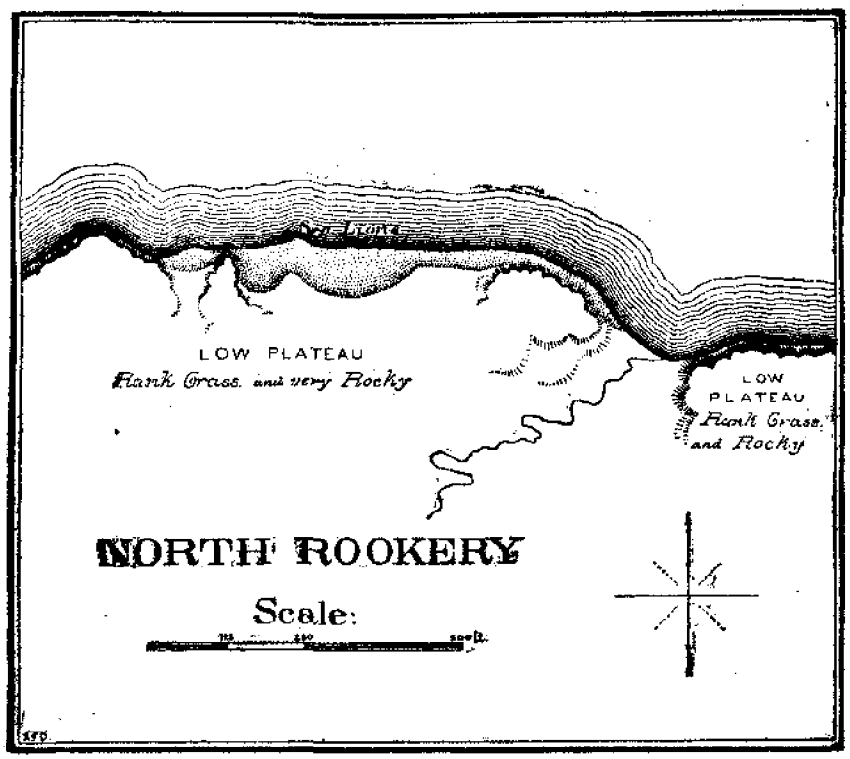
* "Starry Arteel" or "Old Settlement"; a few hundred yards to the eastward of the rookery is the earthen ruin of one of the pioneer settlements in Pribylov's time, and which the natives say, marks the first spot selected by the Russians for their village after the discovery of Saint George, in 1786. "Ateel" on the map should be "Arteel."

† I have been repeatedly astonished at a supernatural power possessed by the fur-seal of resistance to death shocks which would rationally occur to any other animal. To explain clearly, the reader will observe, by reference to the maps, that there are a great many cliffy places between the rookeries on the shore lines of the islands. Some of these bluffs are more than 100 feet in sheer elevation above the surf and rocks awash below. Frequently "holluschickie" in ones, or twos, or threes will stray far away back from the great masses of their kind, and fall asleep in the thick grass and herbage which covers these mural reaches. Sometimes they will lie down and rest very close to the edge, and then as you come tramping along you discover and startle them and yourself alike. They, blinded by their first transports of alarm, plunge promptly over the brink, snorting, coughing, and spitting as they go. Curiously peering after them and looking down upon the rocks, 50 to 100 feet below, instead of seeing their stunned and motionless bodies, you will invariably catch sight of them rapidly scrambling into the water; and, when in it, swimming off like arrows from the bow. Three "holluschickie" were thus inadvertently surprised by me on the edge of the west face to Otter Island. They plunged over from an elevation, there, not less than 200 feet in sheer elevation, and I distinctly saw them fall in scrambling, whirling evolutions, down, thumping upon the rocky shingle beneath, from which they bounded, as they struck, like so many rubber balls. Two of them never moved after the rebound ceased, but the third one reached the water and swam away like a bird on the wing.

While they seem to escape without bodily injury incident to such hard falls as ensue from dropping 50 or 60 feet upon pebbly beach and rough bowlders below, and even greater elevations, yet I am inclined to think that some internal injuries are necessarily sustained in most every case, which soon develop and cause death; the excitement and the vitality of the seal, at the moment of the terrific shock, is able to sustain and conceal the real injury for the time being.

rookery, over which the "holluschickie" haul in proportionate number, and from which the natives make their drives, coming from the village for this purpose, and directing the seals back, in their tracks.* Starry Arteel has 500 feet of sea and cliff margin, with 125 feet of average depth, making ground for 30,420 breeding seals and their young.

NORTH ROOKERY.—Next in order, and half a mile to the eastward, is this breeding ground, which sweeps for 2,750 feet along and around the sea front of a gently sloping plateau; † being in full sight of and close to the village. It has a superficial area occupied by 77,000 breeding seals*



* Driving the "holluschickie" on Saint George, owing to the relative scantiness of hauling area for those animals there, and consequent small numbers found upon these grounds at any one time, is a very arduous series of daily exercises on the part of the natives who attend to it. Glancing at the map, the marked considerable distance, over an exceedingly rough road, will be noticed between Zapadnie and the village; yet, in 1872, eleven different drives across the island, of 400 to 500 seals each, were made in the short four weeks of that season.

The following table shows plainly the striking inferiority of the seal life, as to aggregate number, on this island, compared with that of Saint Paul.

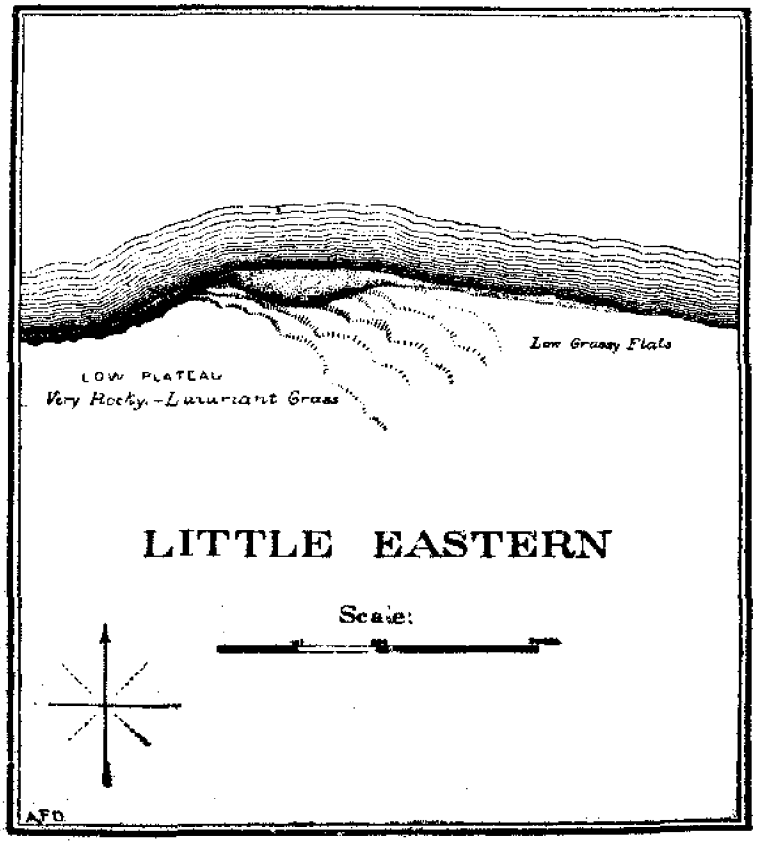
Rookeries of Saint George.	Number of drives made in 1872.	Number of seals driven.
"Zapadnie" (between June 14 and July 28)	11	5,194
"Starry Arteel" (between June 6 and July 29)	14	5,274
"North Rookery" (between June 1 and July 27)	16	4,818
"Little Eastern"		
"Great Eastern" (between June 5 and July 28)	16	9,714

The same activity in "sweeping" the hauling grounds of Saint Paul would bring in ten times as many seals, and the labor be vastly less. The driving at Saint Paul is generally done with an eye to securing each day of the season only as many as can be well killed and skinned on that day, according as it be warmish or cooler.

† I should say "a gently sloping and alternating bluff plateau;" 2,000 feet are directly under the abrupt faces of low cliffs, while the other 750 feet slope down gradually to the water's edge; these narrow cliff belts of breeding fur-seals might be properly styled "rookery ribbons."

and their young. From this rookery to the village, a distance of less than a quarter of a mile, the "holluschickie" are driven, which are killed for their skins, on the common track or seal-worn trail that not only the "bachelors" but ourselves travel over *en route* to and from Starry Arteel and Zapadnie; it is a broad, hard-packed erosion through the sphagnum, and across the rocky plateaux—in fact a regular seal road, which has been used by the drivers and victims during the last eighty or ninety years. The fashion on Saint George, in this matter of driving seals, is quite different from that on Saint Paul. To get their maximum quota of 25,000 annually, it is necessary for the natives to visit every morning the hauling grounds of each one of these four rookeries on the north shore, and bring what they may find back with them for the day.

LITTLE EASTERN ROOKERY.*—From the village to the eastward, about half a mile again, is a little eastern rookery, which lies on a low, bluffy slope, and is not a piece of ground admitting of much more expansion. It has superficial area for the reception of about 13,000 breeding seals and their young.



THE GREAT EASTERN.—This is the last rookery that we find on Saint George. It is an imitation, in miniature, of Tolstoi on Saint Paul, with the exception of there being no parade ground in the rear, of any character whatever. It is from the summit of the cliffs overlooking the narrow ribbon of breeding seals right under them that I have been able to study the movements of the fur-seal in the water to my heart's content; for out, and under the water, the rocks, to a considerable distance, are covered with a whitish algoid growth, that renders the dark bodies of the

*The site of this breeding ground and that of the marine slope of the killing grounds to the east of the village, on this island, is where sea-lions held exclusive possession prior to their driving off by the Russians—so the natives affirm—the only place on Saint George now where the *Eumetopias* breeds is that one indicated on the general chart between Garden cove and Tolstoi Mees.

swimming seals and sea-lions as conspicuous as is the image thrown by a magic lantern of a silhouette on a screen prepared for its reception.* The low rocky flats around the pool to the westward and northwest of the rookery seemed to be filled up with a muddy alluvial wash that the seals do not favor; hence nothing but "holluschickie" range round about them.

RECAPITULATION.—In recapitulation, therefore, the breeding grounds on Saint George Island according to these surveys, which I made between the 12th and 15th of July, 1873, gave the following figures. They are also, as in the case of Saint Paul, the first surveys ever made here:

Name of breeding grounds, July 12-15, 1873.	Seals: ♂ ♀ ⊙.
"Zapadnie" rookery has 600 feet of sea margin, with 60 feet of average depth, making ground for	18,000
"Starry Arteel" rookery has 500 feet of sea-margin, with 125 feet of average depth, making ground for	30,420
"North rookery" has 750 feet of sea margin, with 150 feet of average depth, and 2,000 feet of sea margin, with 25 feet of average depth, making grounds in all for	77,000
"Little Eastern" rookery has 750 feet of sea margin, with 40 feet of average depth, making ground for	13,000
"Great Eastern" rookery has 900 feet of sea margin, with 60 feet of average depth, making ground for	25,000
A grand total of the seal life for Saint George Island, breeding seals and young, of	163,420
Grand total for Saint Paul Island, brought forward, breeding seals and young, of	3,030,000
Grand sum total for the Pribylov Islands (season of 1873), breeding seals and young	3,193,420

4.—THE TOTAL NUMBER OF SEALS ON THE ISLANDS.

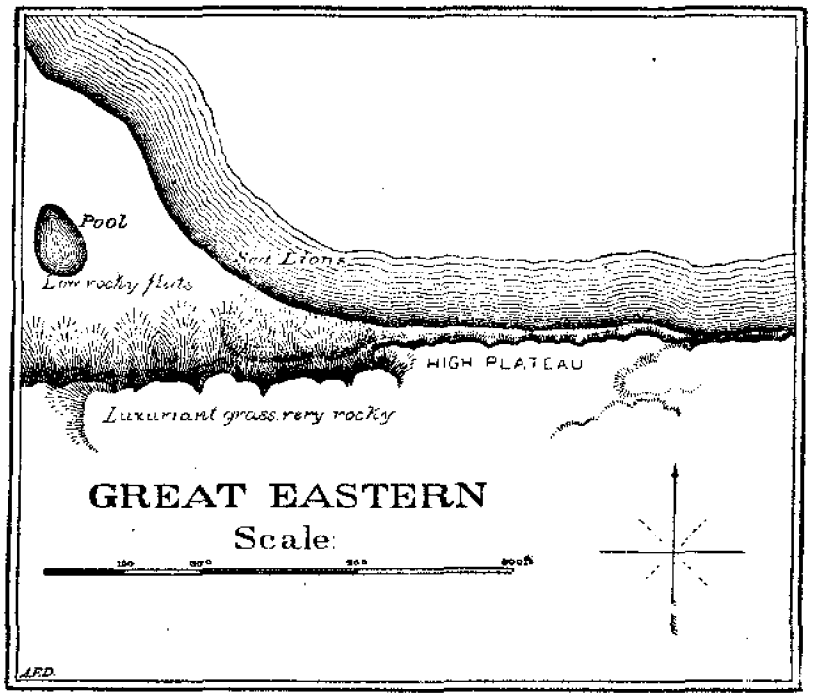
The figures above thus show a grand total of 3,193,420 breeding seals and their young. This enormous aggregate is entirely exclusive of the great numbers of the non-breeding seals, that, as we have pointed out, are never permitted to come up on these grounds, which have been surveyed and epitomized by the table just exhibited. That class of seals, the "holluschickie," in general terms, all males, and those to which the killing is confined, come up on the land and sea beaches between the rookeries, in immense straggling droves, going to and from the sea at irregular intervals, from the beginning to the closing of the entire season. The method of the "holluschickie" on these hauling grounds is not systematic—it is not distinct, like the manner and law prescribed and obeyed by the breeding seals, which fill up these rookery grounds to the certain points as surveyed, and keep these points intact for a week or ten days at a time during the height of every season in July and August; but, to the contrary, upon the hauling grounds to day, an immense drove

*The algoid vegetation of the marine shores of these islands is one that adds a peculiar charm and beauty to their treeless, sunless coasts. Every kelp bed that floats raftlike in Bering Sea, or is anchored to its rocky reefs, is fairly alive with minute sea shrimps, tiny crabs, and little shells, which cling to its masses of interwoven fronds or dart in ceaseless motion through, yet within, its interstices. It is my firm belief that no better base of operations can be found for studying marine invertebrata than is the post of Saint Paul or Saint George; the pelagic and the littoral forms are simply abundant beyond all estimation within bounds of reason. The phosphorescence of the waters of Bering's Sea surpasses, in continued strength of brilliant illumination, anything that I have seen in southern and equatorial oceans. The crests of the long unbroken line of breakers on Lukannon beach looked to me, one night in August, like instantaneous flashing of lightning, between Tolsti Mees and Lukannon head, as the billows successively rolled in and broke; the seals swimming under the water, here on Saint George and beneath the Black Bluffs, streaked their rapid course like comets in the sky; and every time their black heads popped above the surface of the sea they were marked by a blaze of scintillant light:

"Within the shadow of the ship
I watched their rich attire;
Blue, glossy-green, and velvet black
They coiled and swam; and every track
Was a flash of golden fire.
* * * * * * * * *
They moved in tracks of shining white
And when they reared, the elfish light
Fell off in hoary flakes."

[*Ancient Mariner.*

of 100,000 will be seen before you at English Bay, sweeping hither and surging thither over the polished surface which they have worn with their restless flippers, tracing and retracing their tireless marches; then, to-morrow, if the weather is rainy or hot, only a few desultory thousands will be seen over this same area whereon you observed swarming myriads yesterday; consequently the amount of ground occupied by the "holluschickie" is vastly in excess of what



they would require did they conform to the same law of distribution observed by the breeding seals; and this foundation is therefore wholly untenable for any such definite basis and satisfactory conclusion as is that which I have surveyed on the rookeries. Hence, in giving an estimate of the aggregate number of "holluschickie" or non-breeding seals, on the Pribylov Islands, embracing as it does all the males under six or seven years of age and all the yearling females, it must, necessarily, be a simple opinion of mine founded upon nothing better than my individual judgment. This is my conclusion:

The non-breeding seals seem nearly equal in number to that of the adult breeding-seals; but without putting them down at a figure quite so high, I may safely say that the sum total of 1,500,000 in round numbers is a fair enumeration, and quite within bonds of fact. This makes the grand sum total, of the fur-seal life on the Pribylov Islands, over 4,700,000.

5. THE INCREASE OR DIMINUTION OF THE SEAL-LIFE, PAST, PRESENT, AND PROSPECTIVE.

One stereotyped question has been addressed to me universally by my friends since my return, first in 1873, from the seal islands. The query is: "At the present rate of killing the seals, it will not be long ere they are exterminated; how much longer will they last?" My answer is now as it was then, "Provided matters are conducted on the seal islands in the future as they are to-day, 100,000 male seals under the age of five years and over one may be safely taken every year from the Pribylov Islands, without the slightest injury to the regular birth-rates, or natural increase

thereon; provided, also, that the fur-seals are not visited by any plague, or pests, or any abnormal cause for their destruction, which might be beyond the control of men; and to which, like any other great body of animal life, they must ever be subjected to the danger of."*

LOSS OF LIFE SUSTAINED BY THE YOUNG SEALS.—From my calculations, given above, it will be seen that 1,000,000 pups, or young seals, in round numbers, are born upon these islands of the Pribylov Group every year; of this million, one half are males. These 500,000 young males, before they leave the islands for sea, during October and November, and when they are between five and six months old, fat and hardy, have suffered but a trifling loss in numbers, say one per cent., while on and about the islands of their birth; surrounding which, and upon which, they have no enemies whatever to speak of; but, after they get well down to the Pacific, spread out over an immense area of watery highways in quest of piscatorial food they form the most helpless of their kind to resist or elude the murderous teeth and carnivorous attacks of basking sharks† and killer-whales.‡ By these agencies, during their absence from the islands until their reappearance in the following year, and in July, they are so perceptibly diminished in number that I do not think, fairly considered, more than one-half of the legion which left the ground of their birth, last October, came up the next July to these favorite landing-places; that is, only 250,000 of them return out of the 500,000 born last year. The same statement, in every respect, applies to the going and the coming of the 500,000 female pups, which are identical in size, shape, and behavior.

As yearlings, however, these 250,000 survivors of last year's birth have become strong, lithe, and active swimmers; and, when they again leave the hauling-grounds as before, in the fall, they are fully as able as are the older class to take care of themselves; and when they reappear next year, at least 225,000 of them safely return in the second season after birth; from this on I believe that they live out their natural lives of fifteen to twenty years each; the death-rate now caused by the visitation of marine enemies not affecting them, in the aggregate, but slightly. And again, the same will hold good touching the females, the average natural life of which, however, I take to be only nine or ten years each.

* The thought of what a deadly epidemic would effect among these vast congregations of *Pinnipedia* was one that was constant, in my mind, when on the ground and among them. I have found in the *British Annals* (Flemings), on page 17, an extract from the notes of Dr. Trail: "In 1833 I inquired for my old acquaintances, the seals of the Hole of Papa Westray, and was informed that about four years before they had totally deserted the island, and had only within the last few months begun to reappear. * * * About fifty years ago multitudes of their carcasses were cast ashore in every bay in the north of Scotland, Orkney, and Shetland, and numbers were found at sea in a sickly state." This note of Trail is the only record which I can find of a fatal epidemic among the seals; it is not reasonable to suppose that the Pribylov rookeries have never suffered from distempers in the past, or are not to, in the future, simply because no occasion seems to have risen during the comparatively brief period of their human domination.

† *Somniosus microcephalus.* Some of these sharks are of very large size, and when caught by the Indians of the northwest coast, basking or asleep on the surface of the sea, they will, when transfixed by the natives' harpoons, take a whole fleet of canoes in tow and run swiftly with them several hours before exhaustion enables the savages to finally dispatch them. A Hudson Bay trader, William Manson (at Fort Alexander, in 1865), told me that his father had killed one in the smooth waters of Millbank Sound, which measured 24 feet in length, and its liver alone yielded 36 gallons of oil. The *Somniosus* lies motionless for long intervals in calm waters of the North Pacific, just under and at the surface, with its dorsal fin clearly exposed above; what havoc such a carnivorous fish would be likely to effect in a "pod" of young fur-seals, can be better imagined than described.

‡ *Orca gladiator.* While revolving this particular line of inquiry in my mind when, on the ground and among the seals, I involuntarily looked constantly for some sign of disturbance in the sea which would indicate the presence of an enemy; and, save seeing a few examples of the *Orca*, I never detected anything; if the killer-whale was common here, it would be patent to the most casual eye, because it is the habit of this ferocious cetacean to swim so closely at the surface as to show its peculiar sharp, dorsal fin high above the water; possibly a very superficial observer could and would confound the long, trenchant fluke of the *Orca* with the stubby node upon the spine of the humpback whale, which that animal exhibits only when it is about to dive. Humpbacks feed around the islands, but not commonly—they are the exception; they do not, however, molest the seals in any manner whatever; and little squads of these pinnipeds seem to delight themselves by swimming in endless circles around and under the huge bodies of those whales, frequently leaping out and entirely over the cetacean's back, as witnessed on one occasion by myself and the crew of the Reliance, off the coast of Kadiak, June, 1874.

Out of these 225,000 young males, we are required to save only one-fifteenth of their number to pass over to the breeding-grounds, and meet there the 225,000 young females; in other words, the polygamous habit of this animal is such that, by its own volition, I do not think that more than one male annually out of fifteen born is needed on the breeding-ground in the future; but in my calculations, to be within the margin and to make sure that I save two-year-old males enough every season, I will more than double this proportion, and set aside every fifth one of the young males in question; that will leave 180,000 seals in good condition, that can be safely killed every year without the slightest injury to the perpetuation of the stock itself forever in all its original integrity.*

In the above showing I have put the very extreme estimate upon the loss sustained at sea by the pup-seals too large, I am morally certain; but in attempting to draw this line safely, I wish to place the matter in the very worst light in which it can be put, and to give the seals the full benefit of every doubt. Surely, I have clearly presented the case, and certainly no one will question the premises after they have studied the habit and disposition of the rookeries; hence, it is a positive and tenable statement, that no danger of the slightest appreciable degree of injury to the interests of the Government on the seal islands of Alaska exists as long as the present law protecting it, and the management executing it, continues.

COURSE PURSUED BY THE SEALS AFTER LEAVING THE ISLANDS.—These fur-seals of the Pribylov group, after leaving the islands in the autumn and early winter, do not visit land again until the time of their return, in the following spring and early summer, to these same rookery and hauling grounds, unless they touch, as they are navigating their lengthened journey back, at the Russian Copper, and Bering Islands, 700 miles to the westward of the Pribylov group. They leave the islands by independent squads, each one looking out for itself; apparently all turn by common consent to the south, disappearing toward the horizon, and are soon lost in the vast expanse below, where they spread themselves over the entire North Pacific as far south as the forty-eighth and even the forty-seventh parallels of north latitude. Over the immense area between Japan and Oregon, doubtless, many extensive submarine fishing shoals and banks are known to them; at least, it is definitely understood that Bering Sea does not contain them long when they depart from the breeding-rookeries and the hauling-grounds therein. While it is carried in mind that they sleep and rest in the water with soundness and with the greatest comfort on its surface, and that even when around the land, during the summer, they frequently put off from the beaches to take a bath and a quiet snooze just beyond the surf, we can readily agree that it is no inconvenience whatever, when the reproductive functions have been discharged, and their coats renewed, for them to stay the balance of the time in their most congenial element—the briny deep.

NATURAL ENEMIES OF THE FUR-SEALS.—That these animals are preyed upon extensively by killer-whales (*Orca gladiator*), in especial, and by sharks, and probably other submarine foes now unknown, is at once evident; for, were they not held in check by some such cause, they

* When regarding the subject in 1872–'73, of how many surplus young males could be wisely taken from the Pribylov stock, I satisfied myself that more than 100,000 could be drawn upon annually for their skins, and hence was impressed with the idea that the business might be safely developed to a greater maximum; since then, however, I have been giving attention to the other side of the question, which involves the market for the skins and the practical working of any sliding scale of increased killing, such as I then recommended. A careful review of the whole matter modifies my original idea and causes me to think that, all things considered, it is better to "let well enough alone." Although it would be a most interesting commercial experiment to develop the yield of the Pribylov Islands to their full capacity, yet, in view of the anomalous and curious features of the case, it is wiser to be satisfied with the assured guarantee of perpetuation in all original integrity, which the experience of the last ten years gives us on the present basis of 100,000, than to risk it by possibly doubling the revenue therefrom. Therefore, I am not now in favor of my earlier proposition of gradually increasing the killing, until the maximum number of surplus "holluschickie" should be ascertained.

would, as they exist to-day on Saint Paul, quickly multiply, by arithmetical progression, to so great an extent that the island, nay, Bering Sea itself, could not contain them. The present annual killing of one hundred thousand out of a yearly total of over a million males does not, in an appreciable degree, diminish the seal-life, or interfere in the slightest with its regular, sure perpetuation on the breeding grounds every year. We may, therefore, properly look upon this aggregate of four and five millions of fur-seals, as we see them every season on these Pribylov Islands, as the maximum limit of increase assigned to them by natural law. The great equilibrium, which nature holds in life upon this earth, must be sustained at Saint Paul as well as elsewhere.

FOOD CONSUMED BY THE FUR-SEALS.—Why, only think of the enormous food-consumption of these rookeries and hauling grounds; what an immense quantity of finny prey must pass down their voracious throats as every year rolls by. A creature so full of life, strung with nerves, muscles like bands of steel, cannot live on air, or absorb it from the sea. Their food is fish, to the practical exclusion of all other diet. I have never seen them touch, or disturb with the intention of touching it, one solitary example in the flocks of water-fowl which rest upon the surface of the water all about the islands. I was especially careful in noting this, because it seemed to me that the canine armature of their mouths must suggest flesh for food at times as well as fish; but fish we know they eat. Whole windrows of the heads of cod and wolf fishes (*Anarrhichas* sp.), bitten off by these animals at the nape, were washed up on the south shore of Saint George during a gale in the summer of 1873; this pelagic decapitation evidently marked the progress and the appetite of a band of fur-seals to the windward of the island as they passed into and through a stray school of these fishes.

How many pounds per diem is required by an adult seal, and taken by it when feeding, is not certain in my mind. Judging from the appetite, however, of kindred animals, such as sea-lions fed in confinement at Woodward's Gardens, San Francisco, I can safely say that 40 pounds for a full-grown fur-seal is a fair allowance, with at least 10 or 12 pounds per diem to every adult female, and not much less, if any, to the rapidly-growing pups and young "holluschickie." Therefore, this great body of four and five millions of hearty, active animals which we know on the seal islands must consume an enormous amount of such food every year. They cannot average less than 10 pounds of fish each per diem (and this is not half enough for an adult male), which gives the consumption, as exhibited by their appetite, of over 6,000,000 tons of fish every year. What wonder, then, that nature should do something to hold these active fishermen in check.*

* I feel confident that I have placed this average of fish eaten per diem by each seal at a starvation allowance, or, in other words, it is a certain minimum of the whole consumption. If the seals can get double the quantity which I credit them with above, startling as it seems, still I firmly believe that they eat it every year. An adequate realization by ichthyologists and fishermen as to what havoc the fur-seal hosts are annually making among the cod, herring, and salmon of the northwest coast and Alaska would disconcert and astonish them. Happily for the peace of political economists who may turn their attention to the settlement and growth of the Pacific coast of America, it bids fair to never be known with anything like precision. *The fishing of man, both aboriginal and civilized*, in the past, present, and prospective, has never been, is not, nor will it be, more than a drop in the bucket contrasted with the piscatorial labors of these ichthyophagi in those waters of and adjacent to their birth. What catholic knowledge of fish and fishing banks any one of those old "seecatchie" must possess which we observe hauled out on the Pribylov rookeries each summer. It has, undoubtedly, during the eighteen or twenty years of its life, explored every fish eddy, bank, or shoal throughout the whole of that vast immensity of the North Pacific and Bering Sea. It has had more piscine sport in a single twelve month than Izaak Walton had in his whole life.

An old sea captain, Dampier, who, cruising around the world just about two hundred years ago, wrote diligently thereof (or, rather, one Funnel is said to have written for him), and wrote well. He had frequent reference to meeting hair-seals and sea-lions, fur-seals, &c., and fell to repeating this maxim, evidently of his own making: "For wherever there be plenty of fish, there be seals." I am sure that, unless a vast abundance of good fishing ground was near by, no such congregation of seal-life as is that under discussion on the seal islands could exist. The whole eastern half of Bering Sea, in its entirety, is a single fish-spawning bank, nowhere deeper than 50 to 75 fathoms, averaging, perhaps, 40; also, there are great reaches of fishing shoals up and down the northwest coast, from and above the

PELAGIC RANGE OF FUR-SEALS FOR FOOD.—During the winter solstice—between the lapse of the autumnal and the verging of the vernal equinoxes—in order to get this enormous food supply, the fur-seals are necessarily obliged to disperse over a very large area of fishing ground, ranging throughout the North Pacific 5,000 miles across between Japan and the Straits of Fuca. In feeding, they are brought to the southward all this time; and, as they go, they come more and more in contact with those natural enemies peculiar to the sea of these southern latitudes, which are almost strangers and are really unknown to the waters of Bering Sea; for I did not observe, with the exception of ten or twelve perhaps, certainly no more, killer-whales,* a single marine disturbance, or molestation, during the three seasons which I passed upon the islands, that could be regarded in the slightest degree inimical to the peace and life of the *Pinnipedia*; and thus, from my own observation, I am led to believe that it is not until they descend well to the south of the Aleutian Islands, and in the North Pacific, that they meet with sharks to any extent, and are diminished by the butchery of killer-whales.†

The young fur-seals going out to sea for the first time, and following in the wake of their elders, are the clumsy members of the family. When they go to sleep on the surface of the water, they rest much sounder than the others; and their alert and wary nature, which is handsomely developed ere they are two seasons old, is in its infancy. Hence, I believe that large numbers of them are easily captured by marine foes, as they are stupidly sleeping, or awkwardly fishing.

BEHAVIOR OF FUR-SEALS IN THE WATERS AROUND THE ISLANDS.—In this connection I wish to record an impression very strongly made upon my mind, in regard to their diverse behavior when out at sea, away from the islands, and when congregated thereon. As I have plainly exhibited on a preceding page, they are practically without fear of man when he visits them on the land of their birth and recreation; but the same seal that noticed you with quiet indifference at St. Paul, in June and July, and the rest of the season while he was there, or gamboled around your boat when you rowed from the ship to shore, as a dog will play about your horses when you drive from the gate to the house, that same seal, when you meet him in one of the passes of the

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Straits of Fuca, bordering the entire southern, or Pacific, coast of the Aleutian Islands. The aggregate of cod, herring and salmon which the seals find upon these vast icthyological areas of reproduction must be simply enormous, and fully equal to the most extravagant demand of the voracious appetites of *Callorhinii*.

When, however, the fish retire from spawning here, there, and everywhere over these shallows of Alaska and the northwest coast along by the end of September to 1st of November, every year, I believe that the young fur-seal, in following them into the depths of the great Pacific, must have a really arduous struggle for existence—unless it knows of fishing banks unknown to us. The yearlings, however, and all above that age, are endowed with sufficient muscular energy to dive rapidly in deep soundings, and to fish with undoubted success. The pup, however, when it goes to sea, five or six months old, is not lithe and sinewy like the yearling; it is podgy and fat, a comparative clumsy swimmer, and does not develop, I believe, into a good fisherman until it has become pretty well starved after leaving the Pribylovs. It sails away from the islands in the wake of its elder relatives very much as a kettle-bottomed scow trims its course after a graceful and speedy clipper-built ship.

I must not be understood as saying that fish alone constitutes the diet of the Pribylov pinnipeds; I know that they feed, to a limited extent, upon crustaceans and upon the squid (*Loligo*), also eating tender algoid sprouts; I believe that the pup-seals live for the first five or six months at sea largely, if not wholly, upon crustaceans and squids; they are not agile enough, in my opinion, to fish successfully in any great degree, when they first depart from the rookeries.

* But I did observe a very striking exhibition, however, of this character one afternoon while looking over Lukannon Bay. I saw a "killer" chasing the alert "holluschickie" out beyond the breakers, when suddenly, in an instant, the cruel cetacean was turned toward the beach in hot pursuit, and in less time than this is read the ugly brute was high and dry upon the sands. The natives were called, and a great feast was in prospect when I left the carcass.

But this was the only instance of the orca in pursuit of seals that came directly under my observation; hence, though it does undoubtedly capture a few here every year, yet it is an insignificant cause of destruction, on account of its rarity.

† In the stomach of one of these animals, year before last, 14 small harp-seals were found.—*Michael Carroll's Report of Seal and Herring Fisheries of Newfoundland.*

Aleutian chain, 100 or 200 miles away from here, as the case may be, or to the southward of that archipelago, is the shiest and wariest creature your ingenuity can define. Happy are you in getting but a single glimpse of him, first; you will never see him after, until he hauls out, and winks and blinks across Lukannon sands.*

But the companionship and the exceeding number of the seals, when assembled together annually, makes them bold; largely due, perhaps, to their fine instinctive understanding, dating, probably, back many years, seeming to know that man, after all, is not wantonly destroying them, and what he takes is from the ravenous maw only of the killer-whale or the saw-tipped teeth of a Japan shark. As they sleep in the water, off the Straits of Fuca, and the northwest coast as far as Dixon's Sound, the Indians belonging to that region surprise them with spears and rifle, capturing quite a number every year.

ENCYSTED BULLETS, ARROWS, &C., IN FUR-SEALS.—On the killing grounds at Saint George, in June, 1873, the natives would frequently call my attention to seals that they were skinning, in *the hides of which buckshot were embedded and encysted just under the skin in the blubber. From* one animal I picked out fifteen shot, and the holes which they must have made in the skin were so entirely healed over as not to leave the faintest trace of a scar. These buckshot were undoubtedly received from the natives of the northwest coast, anywhere between the Straits of Fuca and the Aleutian Islands. The number taken by these hunters on the high seas is, however, inconsiderable; the annual average, perhaps, of five thousand skins is a fair figure—some seasons more, some seasons less.† The natives have also found on the killing grounds, in the manner just indicated, specimens of the implements employed by the Aleuts to the southward, such as the tips of birds' spears and bone lances, comfortably encysted in the blubber under the skin; but only very small fragments are found, because I believe that any larger pieces would create suppuration and slough out of the wounds.‡

* When fur-seals were noticed, by myself, far away from these islands, at sea, I observed that then they were as shy and as wary as the most timorous animal which, in dreading man's proximity, could be—sinking instantly on apprehending the approach or presence of the ship, seldom to reappear to my gaze. But, when gathered in such immense numbers at the Pribylov Islands, they are suddenly metamorphosed into creatures wholly indifferent to my person. *It must cause a very curious sentiment in the mind of him who comes for the first time, during the summer season, to* the Island of St. Paul; where, when the landing boat or lighter carries him ashore from the vessel, the whole short marine journey is enlivened by the gambols and aquatic evolutions of fur-seal convoys to the "Bidarrah," which *sport joyously and fearlessly round and round his craft, as she is rowed lustily ahead by the natives; the fur-seals,* then, of all classes, "holluschickie" principally, pop their dark heads up out of the sea, rising neck and shoulders erect above the surface, to peer and ogle at him and at his boat, diving quickly to reappear just ahead or right behind, hardly beyond striking distance from the oars; these gymnastics of *Callorhinus* are not wholly performed thus in silence, for it usually snorts and chuckles with hearty reiteration.

The sea-lions up here also manifest much the same marine interest, and give the voyager an exhibition quite similar to the one which I have just spoken of, when a small boat is rowed in the neighborhood of its shore rookery; it is not, however, so bold, confident, and social as the fur-seal under the circumstances, and utters only a short, stifled growl of surprise, perhaps; its mobility, however, of vocalization is sadly deficient when compared with the scope and compass of its valuable relative's polyglottis.

The hair-seals (*P. vitulina*) around these islands never approached our boats in this manner, and I never caught more than a furtive glimpse of their short, bull-dog heads.

The walrus (*Rosmarus obesus*) also, like *Phoca vitulina*, gave undoubted evidence of sore alarm over the presence of my boat and crew anywhere near its proximity in similar situations, only showing itself once or twice, perhaps, at a safe distance by elevating nothing but the extreme tip of its muzzle and its bleared popping eyes above the water; it uttered no sound except a dull, muffled grunt, or else a choking, gurgling bellow.

† See report, in a subsequent chapter, by James G. Swan, on Fur Sealing at Cape Flattery, Straits of Fuca.

‡ Touching this matter of the approximate numbers of fur seals which are annually slain in the open sea, straits, and estuaries of Bering and the North Pacific Oceans, I have, necessarily, no definite data upon which to base a calculation; but, such as I have points to the capture every year of one thousand to one thousand four hundred young fur-seals in the waters of Oomnak Pass, and as many in the straits adjoining Borka Village, by the resident Aleuts; these are the only two points throughout the entire Aleutian chain and the peninsula where any *Callorhinus* is taken by the natives, except an odd example now and then elsewhere. On the northwest coast, between San Francisco and Prince William's Sound, the fur-seal is only apprehended, to any extent, at two points, viz. off the Straits of Fuca, 10 to 20

INCREASE OF THE SEAL-LIFE.—I am free to say that it is not within the power of human management to promote this end to the slightest appreciable degree over its present extent and condition as it stands in the state of nature, heretofore described. It cannot fail to be evident, from my detailed narration of the habits and life of the fur-seal on these islands during so large a part of every year, that could man have the same supervision and control over this animal during the whole season which he has at his command while they visit the land, he might cause them to multiply and increase, as he would so many cattle, to an indefinite number—only limited by time and the means of feeding them. But the case in question, unfortunately, is one where the fur-seal is taken, by demands for food, at least six months out of every year, far beyond the reach or even cognizance of any man, where it is all this time exposed to many known powerful and destructive natural enemies, and probably many others, equally so, unknown, which prey upon it, and, in accordance with that well-recognized law of nature, keeps this seal-life at a certain number—at a figure which has been reached, for ages past, and will continue to be in the future, as far as they now are—their present maximum limit of increase, namely, between four and five million seals, in round numbers. This law holds good everywhere throughout the animal kingdom, regulating and preserving the equilibrium of life in the state of nature; did it not hold good, these seal-islands and all Bering Sea would have been literally covered, and have swarmed like the *Medusæ* of the waters, long before the Russians discovered them. But, according to the silent testimony of the rookeries, which have been abandoned by the seals, and the noisy, emphatic assurance of those now occupied to-day, there were no more seals when first seen here by human eyes in 1786 and 1787, than there are now in 1881, as far as all evidence goes.

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miles at sea, sweeping over a series of large fishing shoals which are located there, and in that reach of water between Queen Charlotte Island and the mouth of Dixon Sound. Several small schooners, with native crews, and the Indians, themselves, in their own canoes, cruise for them here during May and June of each year. How many they secure every season is merely a matter of estimation, and therefore not a subject of definite announcement. In my judgment, after carefully investigating the question at Victoria and Port Townsend in 1874, I believe, as an average, that these pelagic fur-sealers do not, altogether, secure five thousand animals annually.

Those seals killed by the Aleuts of Mankushin and Borka settlements, above referred to, are all pups, and are used at home—none exported for trade.

The last record which I can find of fur-seals being taken on land other than that of the Pribylov group of the American side, is the following brief table of Techmainov, who, in 1863, published (in 2 volumes) a long recapitulation of the Russian-American Company's labors in Alaska as illustrated by a voluminous series of personal letters by the several agents of that company. Techmainov says that these fur-seals were taken on the Farrallones, which are small islets just abreast the entrance to the Golden Gate, California.

Taken on the Farrallones, California coast	1824.	1825.	1826.	1827.	1828.	1829.	1830.	1831.	1832.	1833.	1834.
Fur-seals	1,050	455	299	.....	210	287	.....	205	118	54	.....

This period of 1824–1834 was the one passed by the Russians in their occupation of Ross or Bodega, California, where a colony was engaged in raising cereals and beef, &c., for the stations in Alaska. I am inclined so think, however, that very likely many of the specimens of *Callorhinus* counted in this table were shot or speared, as they now are out at sea off the Straits of Fuca. The number is insignificant, but the pelts were not very valuable in those days, and probably very slight exertions were made to get them; or, otherwise, three thousand or five thousand annually could have been secured at sea then, as they are to-day, by our people and the Indians of Cape Flattery.

The record, however, of killing fur-seals on the Farallones, between 1806 and 1837, by the Russians, who were established then at Bodega, California, is an honest one. I do not find any mention made of the fact that they bred there, and I am inclined to think they did not. I believe that when small squads of *Callorhinus ursinus* hauled out on the California Islets, they did so lured by the large numbers of breeding *Zalophus*, and the *Eumetopias* which repaired there then, as they do now, for that purpose. Had the sea-lions not been there, in the manner aforesaid, the presence of fur-seals on North American land, elsewhere than on that of the Pribylov group, would not have been thus determined and established.

Again, in this connection, and corroborative is the fact that in 1878 a few hundred fur-seals were taken by sea-lion hunters among the *Zalophus* at Santa Barbara and Guadaloupe Islands, southern Californian coast. I am assured of this fact by the evidence of the gentleman who himself purchased the skins from the lucky hunters. None have ever been seen there before by our people, and none have been taken since. The Russian archives give no testimony on this score.

SITES OF ABANDONED ROOKERIES.—With reference to the amount of ground covered by the seals, when first discovered by the Russians, I have examined every foot of the shore line of both islands where the bones, polished rocks, &c., might be lying on any deserted areas. Since then, after carefully surveying the new ground now occupied by the seals, and comparing this area with that which they have deserted, I feel justified in stating that for the last twelve or fifteen years, at least, the fur-seals on these islands have not diminished, nor have they increased as a body to any noteworthy degree; and throughout this time the breeding grounds have never been disturbed except at that brief but tumultuous interregnum during 1868; and they have been living since in a perfectly quiet and natural condition. Without some stop-brake upon this seal-life, with a million of young born every year during the last ten or fifteen seasons, at least, the annual taking of one hundred thousand males would not, could not, in the slightest degree retard that increase which would set in at once, were it not for this check on the high seas aforesaid.

CAN THE NUMBER BE INCREASED?—What can be done to promote their increase? We cannot cause a greater number of females to be born every year than are born now; we do not touch or disturb these females as they grow up and live; and never will we, if the law and present management is continued. We save double—we save more than enough males to serve; nothing more can be done by human agency; it is beyond our power to protect them from their deadly marine enemies as they wander into the boundless ocean searching for food.*

In view, therefore, of all these facts, I have no hesitation in saying, quite confidently, that under the present rules and regulations governing the sealing interests on these islands, the increase or diminution of the seal-life thereon will amount to nothing in the future; that the seals will exist, as they do exist, in all time to come at about the same number and condition recorded in this report. To test this theory of mine, I here, in the record of my surveys of the rookeries, have put stakes down which will answer, upon those breeding grounds, as a correct guide as to their present, as well as their future, condition, from year to year.

SURVEYING THE CONDITION OF THE ROOKERIES.—During the first week of inspection of some of those earliest arrivals, the "seecatchie," or full-grown males, will frequently take flight to the water when approached; but these runaways quickly return. By the end of May, however, the same seals will hardly move to the right or left when you attempt to pass through them. Then, two weeks before the females begin to come in, and quickly after their arrival, the organization of the fur-seal rookery is rendered entirely indifferent to man's presence on visits of quiet inspection, or anything else, save their own kind, and so continues during the rest of the season.

I have called attention to the singular fact, that the breeding-seals upon the rookeries and hauling grounds are not affected by the smell of blood or carrion arising from the killing fields, or the stench of blubber fires which burn in the native villages. This trait is beautifully illustrated, and conclusively, by the attitude of those two rookeries near the village of Saint Paul; for the breeding ground on this spit, at the head of the lagoon, is not more than 40 yards from the great killing grounds to the eastward; being separated from those spots of slaughter, and the seventy or eighty thousand rotting carcasses thereon, by a slough not more than 10 yards wide. These seals can smell the blood and carcasses, upon this field, from the time they land in the spring until

*A great deal of speculation in regard to the probable increase of diminution of the seal-life would end, if it were possible to pen these animals up and feed them, like hogs, on the Pribylov Islands; but that is theoretically and practically out of the question. In the one case granted, for the sake of argument, that we could secure for them at the start the ten or twelve million tons of fish required as subsistence in a single year, what should we do with them when the snow and sleet of winter would render sea-bathing, on a large scale, imperative for their well-being? We can neither feed nor can we ever control their movements in the slightest degree, with reference to their protection in the sea or increase on the land, beyond what we are now doing. I trust that no man's desire, no matter how worthy his ambition, will ever get him or the seals into trouble on this score.

they leave in the autumn; while the general southerly winds waft to them the odor and sounds of the village of Saint Paul, not over 200 rods south of them, and above them, in plain sight. All this has no effect upon the seals—they know that they are not disturbed—and the rookery, the natives declare, has been slightly but steadily increasing. Therefore, with regard to surveying and taking these boundaries assumed by the breeding-seals every year, at that point of high tide, and greatest expansion, which they assume between the 8th and 15th of July, it is an entirely practicable and simple task. You can go everywhere on the skirts of the rookeries almost within reaching distance of the harems, and they will greet you with quiet, inoffensive notice, and permit close, unbroken observation, when it is subdued and undemonstrative, paying very little attention to your approach.

Ten years have passed, with the end of last season, in which nearly 100,000 young males have been annually taken on St. Paul and St. George; 75,000 from the former, and 25,000 from the latter, as a rule; and we now have the experience with which to enlighten our understanding, and to make our statements correct. That affirmation is, that if the effect of annually killing 100,000 young male seals is either to increase or diminish the seal-life on the Pribylov Islands, it cannot be seen; it cannot be noticed; it has not to a certainty wrought injury, and it has not promoted an increase. I advanced this hypothesis in 1873; and I now find it completely verified and confirmed by the united, intelligent testimony of those who have followed on the ground in my footsteps. The last reports received from the seal islands, filed in the Treasury Department, by gentlemen of the best character, and of excellent ability, with whom, I regret to say, I have not a personal acquaintance, declare that the seals are increasing; that the rookeries have expanded perceptibly over the margins which I have laid down on these maps. They had my data, because I left a copy of these manuscript surveys, reproduced herein, in their respective offices on the two islands.

PECUNIARY VALUE OF THE SEAL-LIFE ON THE PRIBYLOV ISLANDS.—The theoretical value of these interests of the Government on the Pribylov Islands, represented by 2,500,000 to 3,000,000 fur-seals, male and female, in good condition, is not less than $10,000,000 to $12,000,000; taking, however, the females out of the question, and from this calculation, and looking at the "hollus-chickie" alone, as they really represent the only killable seals, then the commercial value of the same would be expressed by the sum of $1,800,000 to $2,000,000; this is a permanent principal invested here, which now nets the public treasury more than 15 per cent. annually; a very handsome rate of interest, surely.

STRANGE IGNORANCE OF THIS VALUE IN 1867.—Considering that this return is the only one made to the Government by Alaska since its transfer, and that it was never taken into account at first, by the most ardent advocates of the purchase of Russian America, it is in itself highly creditable and interesting; to Senator Sumner the friends of the acquisition of this territory in 1867 delegated the task of making the principal argument in its favor. Everything that was written in strange tongues was carefully translated by the Government, so that the choice bits of mention which could be found of Alaska's value should be placed in Sumner's hands. Hence his speech* on the subject possesses this interest: it is the embodiment of everything that could be scraped together, having the faintest shadow of authenticity, by all of the eager friends of the purchase, which gave the least idea of any valuable natural resources in Alaska; therefore, when, in summing all this up, Sumner makes no reference whatever to the seal islands, or the fur-seal itself, the extraordinary ignorance at home and abroad relative to the Pribylov Islands can be well appreciated.

* Speech on cession of Russian America, U. S. Senate, 1867; "*Summary*," p. 48.

THE SAFE PERPETUATION OF THESE INTERESTS.—We know now, to a certainty, that we can take 100,000 young male seals every year from these hauling grounds of Saint Paul and Saint Goerge, without the slighest injury to the interest of the Government thereon. How many more can be taken annually, is a problem which, perhaps, to the best interests of all concerned, had better remain unsolved. As a mere pleasure of calculation and evolution from known facts, I was satisfied, and am now, that 150,000 to 180,000 "holluschickie" could annually be taken without any sign of future detriment; but, though at first I did not, yet I should now, for one, object to a full business execution; because these curious, anomalous, and valuable interests of the Government might as well stand "well enough alone."

The Government derives a handsome revenue, as matters now go on, and the increased tax which might accrue to the public treasury from a higher development of the business, would hardly pay, when weighed against the slighest risk of its injury in the future.

THOUGHTS UPON THE POSSIBLE MOVEMENTS OF THE FUR-SEALS IN THE FUTURE.—As these animals live and breed upon the Pribylov Islands, the foregoing studies of their habit declare certain natural conditions of landing-ground and climate to be necessary for their existence and perpetuation. From my surveys made upon the islands to the north, Saint Matthew and Saint Lawrence, together with the scientific and corroborating testimony of those who have visited all of the mainland coast of Alaska, and the islands contiguous, including the peninsula and the great Aleutian Archipelago, I have no hesitation in stating that the fur-seal cannot breed, or rest for that matter, on any other land than that now resorted to, which lies within our boundary lines; the natural obstacles are insuperable. Therefore, so far as our possessions extend, we have, in the Pribylov Group, the only eligible land to which the fur seal can repair for breeding; and on which, at Saint Paul Island alone, there is still room enough of unoccupied rookery-ground for the accommodation of twice as many seals as we find there to-day. But we must not forget a very important prospect; for, we know that to the westward, only 700 miles, and within the jurisdiction of Russia, are two other seal-islands—one very large, on which the fur-seal regularly breeds also; and though from the meager testimony in my possession, compared with Saint Paul, the fur seal life upon them is small, still, if that land within the pale of the Czar's dominion be as suitable for the reception of the rookeries as is that of Saint Paul, then what guarantee have we that the seal-life on Copper and Bering Islands, at some future time, may not be greatly augmented by a corresponding diminution of our own, with no other than natural causes operating? Certainly, if the ground on either Bering or Copper Island, in the Commander Group, is as well situated for the wants of the breeding fur-seal as is that exhibited by the Pribylov Islands, then I say confidently that we may at any time note a diminution here and find a corresponding augmentation there; for I have clearly shown, in my chapter on the habits of these animals (see Section I of this report), that they are not so particularly attached to the respective places of their birth, but that they rather land with an instinctive appreciation of the fitness of that ground as a whole.

MORE DEFINITE KNOWLEDGE NEEDED OF THE RUSSIAN SEAL-ISLANDS.—If we, however, possess all the best suited ground, then we can count upon retaining the seal-life as we now have it, by a vast majority, and, in no other way; for it is not unlikely that some season may occur when an immense number of the fur-seals, which have lived during the last four or five years on the Pribylov Islands, should be deflected from their usual feeding-range at sea by the shifting of schools of fish, and other abnormal causes, which would bring them around quite close to the Asiatic seal-grounds, in the spring; and the scent from those rookeries would act as a powerful stimulant and attraction for them to land there, where the conditions for their breeding may be just as favorable as they desire. Such being the case, this diminution, therefore, which we would

notice on the Pribylov Group, might be the great increase observed at the Commander Islands, and not due to any mismanagement on the part of the men in charge of these interests. Thus, it appears to me necessary that definite knowledge concerning the Commander Islands and the Kuriles should be gathered; without it, I do not hesitate to say that any report made by an agent of the Government as to a visible diminution of the seal-life on the Pribylovs, due in his opinion to the effect of killing as it is conducted there, would be without good foundation; that this diminution would have been noticed just the same, in all likelihood, had there been no taking of seals at all on the Pribylov Islands, and that the missing seals were, more than probable, over on the Russian grounds.

If we find, however, that the character of this Russian seal-land is restricted to narrow beach-margins, under bluffs, as at Saint George, then we shall know that a great body of seals will never attempt to land there when they could not do so without suffering, and in violation of their laws during the breeding-season. Therefore, with this correct understanding to start on, we can then feel alarmed with good reason, should we ever observe any diminution, to a noteworthy degree, on our seal-islands of Bering Sea.

POSSIBLE DEFLECTION OF SEALS IN FEEDING.—I do not call attention to this subject with the slightest idea in my mind, as I write, of any such contingency arising, even for an indefinite time to come; but still I am sensible of the fact that it is possible for it to occur any season. But the seals undoubtedly feed on their pelagic fields in systematic routine of travel, from the time they leave the Pribylov Islands until that of their return; therefore, in all probability, unless the fish upon which they are nourished suddenly become scarce in our waters and soundings, the seals will not change their base, as matters now progress; but it is possible for the finny shoals and schools to be so deflected from their migration to and from their spawning-beds, as to carry this seal-life with it, as I have hinted above. Thus it cannot be superfluous to call up this question, so that it shall be prominent in discussion, and suggestion for future thought.

NEED OF CAREFUL YEARLY EXAMINATION.—In the mean time the movements of the seals upon the great breeding-rookeries of Saint Paul and those of Saint George should be faithfully noted and recorded every year; and as time goes on, this record will place the topic of their increase or diminution beyond all theory or cavil.

6.—STATISTICS OF SEALS TAKEN FROM THE ISLANDS.

EXHIBIT OF ALL SKINS SHIPPED FROM THE PRIBYLOV ISLANDS.—As an exhibit of the entire number of fur-seal skins taken for taxes and sale from the Pribylov Islands, between 1797 and 1880, inclusive, I present the following table, which, although it may vary a few thousand skins—not over one hundred thousand in all, from the true aggregate—during the long period of nearly one hundred years covered by it, I am nevertheless satisfied that it is the best evidence of the kind which can be obtained. Prior to the year 1868 it will be noticed that I have given only a series of estimates for the period antedating that year, as far back as 1862. The reason for this is, that I can find nowhere, in writing, an authenticated record of the catch. It was the policy of the old Russian Company invariably to take more skins, every year, from these islands down to Sitka than they could profitably dispose of annually in the markets of the world; a large surplus being yearly left over, which were suffered to decay or be destroyed by moths, and subsequently thrown into the sea. I can only judge, therefore, of what they took in that period, from what I know they had on hand in their salt-house at Saint George and Saint Paul during 1867, which was forty thousand to forty-eight thousand skins; and this the natives told me was a larger average than

they had taken for a great many years prior to that date. Hence, I have proportioned it back to the last record, which I find in Techmainov, whose figures, embraced in the three periods, from 1796 to 1861, have been given as copied by him from the authentic archives of the old Russian Company; he is careful to say in this connection that the exhibit does not show all skins that were taken from the seal-islands, but only those which the Russians took for sale from Sitka.

And, again, other Russian authors, rather than this historian of the Russian-American Company, have said that immense numbers of fur-seal skins—hundreds of thousands—were frequently accumulated in the warehouses at Sitka only to decay and be destroyed. Their aggregate cannot be estimated within any bound of accuracy, and it is not in the sum total of the following table. What we have taken on the island, since 1868, is presented below, almost correct. In the following table, relative to the Pribylov Group, it will be noticed that there is a gap of ten years between 1786, the date of their discovery, and 1797, the time of the earliest Russian record. How many were taken then, there is not the faintest evidence in black and white; but we do know that from the time of the discovery of the Pribylov Islands up to 1799, the taking of fur-seals on both of these islands progressed without count or lists; and without any responsible head or director; because there were then, upon those islands, seven or eight different companies, represented by as many agents or leaders, and all of them vied one with the other in taking as many fur-seals as they could.*

Fur-seal skins taken for shipment and sale (Callorhinus ursinus) from the Pribylov Islands.

Period.	Number of skins.	Period.	Number of skins.	Period.	Number of skins.
*1797-1821 (24 years)	1,232,374	1867	†48,000	1875	99,500
*1821-1842 (21 years)	458,502	1868	242,000	1876	93,002
*1842-1861 (19 years)	372,000	1869	87,000	1877	83,500
1862	†20,000	1870	9,965	1878	95,000
1863	†25,000	1871	93,000	1879	99,968
1864	†26,000	1872	99,000	1880	99,950
1865	†40,000	1873	99,630		
1866	†42,000	1874	99,820	Total, 1797 to 1880	3,561,051

* Including about 5,000 annually from the Commander Islands.

The following table shows the number of fur seals taken on Commander Islands from 1862 to 1880:

Fur-seal skins taken for shipment (Callorhinus ursinus) from the Commander Islands.

Years.	Number of seals taken.	Years.	Number of seals taken.	Years.	Number of seals taken.
1862	4,000	1869	24,000	1876	26,960
1863	4,500	1870	24,000	1877	21,532
1864	5,000	1871	3,614	1878	31,340
1865	4,000	1872	29,318	1879	42,752
1866	4,000	1873	30,396	1880	48,504
1867	4,000	1874	31,272		
1868	12,000	1875	36,274	Total, 1862 to 1880	367,462

* The attempt, on my part, to get an authentic list of the numbers of fur-seals slain upon the Pribylov Islands, prior to 1868, has simply been, to my mind, a partial failure. My investigation and search for such record has satisfied me that it does not exist; memoranda of shipments only, each season, were made by the agents of the Russian Company when the vessels took those skins from the seal islands to Sitka; and of these skins, again, count was only made of such as were exported to China or Russia, no mention being made anywhere of the number which was consumed in Alaska by the company's large force of attachés, or else destroyed at New Archangel. This method of accounting for the yield from the Pribylovs from 1806 or 1817 up to 1867, naturally confuses a correct determination as to the sum total—renders it, perhaps, very inaccurate.

7.—THE MANNER OF TAKING THE SEALS.

THE MANNER IN WHICH THE SEALS ARE TAKEN.—By reference to the habits of the fur-seal, which I have discussed elsewhere, it is now plain and beyond doubt that two-thirds of all the males which are born, and they are equal in numbers to the females born, are never permitted by the remaining third, strongest by natural selection, to land upon the same breeding ground with the females, which always herd thereupon *en masse*. Hence this great band of "bachelor" seals, or "holluschickie," so fitly termed, when it visits the island is obliged to live apart entirely—sometimes, and some places, miles away from the rookeries; and in this admirably perfect method of nature are those seals which can be properly killed without injury to the rookeries, selected and held aside by their own volition, so that the natives can visit and take them, as they would so many hogs, without disturbing, in the least degree, the utter peace and entire quiet of the breeding grounds, where the stock is perpetuated.

The manner in which the natives capture and drive the "holluschickie" up from the hauling grounds to the slaughter-fields near the two villages of Saint Paul and Saint George, and elsewhere on the islands, cannot be improved upon. The routine which they follow is most satisfactory; it is in this way: At the beginning of every sealing season, that is, during May and June, large bodies of the young "bachelor" seals do not haul up on land very far from the water—a few rods at the most—and, when these first arrivals are sought after, the natives, in capturing them, are obliged to approach slyly and run quickly between the dozing seals and the surf, before they can take alarm and bolt into the sea; thus, in this way a dozen Aleuts, running down the sand beach of English Bay, in the early morning of some June day, will turn back from the water thousands of seals, just as the mold-board of a plow lays over and back a furrow of earth. When the sleeping seals are first startled, they arise, and, seeing men between them and the water, immediately turn, lope, and scramble rapidly back up and over the land; the natives then leisurely walk on the flanks and in the rear of the drove thus secured, directing and driving them over to the killing grounds, close by the village.*

PROGRESSION OF A SEAL-DRIVE.—A drove of seals on hard or firm grassy ground, in cool and moist weather, may be driven with safety at the rate of half a mile an hour; they can be urged along, with the expenditure of a great many lives, however, at the speed of a mile or a mile and a quarter per hour; but this is highly injurious, and it is seldom ever done. An old bull seal, fat and unwieldy, cannot travel with the younger ones, though it can lope or gallop as it starts over the ground as fast as an ordinary man can run, over 100 yards; but then it fails utterly, falls to the earth supine, entirely exhausted, hot, and gasping for breath.

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* The task of getting up early in the morning, and going out to the several hauling grounds, closely adjacent, is really all there is of the labor involved in securing the number of seals required for the day's work on the killing grounds. The two, three, or four natives upon whom, in rotation, this duty is devolved by the order of their chief, rise at first glimpse of dawn, between 1 and 2 o'clock, and hasten over to Lukannon, Tolstoi, or Zoltoi, as the case may be, "walk out" their "holluschickie," and have them duly on the slaughter field before 6 or 7 o'clock, as a rule, in the morning. In favorable weather the "drive" from Tolstoi consumes two and a half to three hours' time; from Lukannon, about two hours, and is often done in an hour and a half; while Zoltoi is so near by that the time is merely nominal.

I heard a great deal of talk among the white residents of Saint Paul, when I first landed and the sealing-season opened, about the necessity of "resting" the hauling grounds; in other words, they said that if the seals were driven in repeated daily rotation from any one of the hauling grounds, that this would so disturb these animals as to prevent their coming to any extent again thereon, during the rest of the season. This theory seemed rational enough to me at the beginning of my investigations, and I was not disposed to question its accuracy; but subsequent observation, directed to this point particularly, satisfied me, and the sealers themselves with whom I was associated, that the driving of the seals had no effect whatever upon the hauling which took place soon or immediately after the field, for the hour, had been swept clean of seals by the drivers. If the weather was favorable for landing, i. e., cool, moist, and foggy, the fresh hauling of the "holluschickie" would cover the bare grounds again in a very short space of time

The "holluschickie" are urged along over the path leading to the killing grounds with very little trouble, and require only three or four men to guide and secure as many thousand at a time. They are permitted to frequently halt and cool off, as heating them injures their fur. These seal-halts on the road always impressed me with a species of sentimentalism and regard for the creatures themselves. The men dropping back for a few moments, the awkward shambling and scuffling of the march at once ceases, and the seals stop in their tracks to fan themselves with their hind-flippers, while their heaving flanks give rise to subdued panting sounds. As soon as they apparently cease to pant for want of breath, and are cooled off comparatively, the natives step up once more, clatter a few bones with a shout along the line, and the seal-shamble begins again—their march to death and the markets of the world is taken up anew.

I was also impressed by the singular docility and amiability of these animals when driven along the road; they never show fight any more than a flock of sheep would do; if, however, a few old seals get mixed in, they usually get so weary that they prefer to come to a stand-still and fight rather than move; otherwise no sign whatever of resistance is made by the drove from the moment it is intercepted, and turned up from the hauling grounds, to the time of its destruction at the hands of the sealing gang.

This disposition of the old seals to fight rather than endure the panting torture of travel is of great advantage to all parties concerned; for they are worthless commercially, and the natives are only too glad to let them drop behind, where they remain unmolested, eventually returning to the sea. The fur on them is of little or no value, their under wool being very much shorter, coarser, and more scant than in the younger; especially so on the posterior parts along the median line of the back.

This change for the worse or deterioration of the pelage of the fur-seal takes place, as a rule, in the fifth year of their age; it is thickest and finest in texture during the third and fourth year of life, hence, in driving the seals on Saint Paul and Saint George up from the hauling-grounds the natives make as far as practicable a selection from males of that age.

It is quite impossible, however, to get them all of one age without an extraordinary amount of stir and bustle, which the Aleuts do not like to precipitate; hence the drive will be found to consist usually of a bare majority of three and four year olds, the rest being two-year-olds principally, and a very few, at wide intervals, five-year-olds, the yearlings seldom ever getting mixed up.

METHOD OF LAND TRAVEL.—As the drove progresses along the path to the slaughtering-grounds, the seals all move in about the same way; they go ahead with a kind of walking step and a sliding, shambling gallop. The progression of the whole caravan is a succession of starts, spasmodic and irregular, made every few minutes, the seals pausing to catch their breath, and make, as it were, a plaintive survey and mute protest. Every now and then a seal will get weak in the lumbar region, then drag his posteriors along for a short distance, finally drop breathless and exhausted, quivering and panting, not to revive for hours—days, perhaps—and often never. During the driest driving days, or those days when the temperature does not combine with wet

sometimes in a few hours after the driving of every seal from Zoltoi sands over to the killing fields adjacent, those dunes and the beach in question would be swarming anew with fresh arrivals. If, however, the weather is abnormally warm and sunny, during its prevalence, even if for several consecutive days, no seals to speak of will haul out on the emptied space; indeed, if these "holluschickie" had not been taken away by man from Zoltoi or any other hauling ground on the islands when "tayopli" weather prevailed, most of such seals would have vacated their terrestrial loafing places pro tem. for the cooler embraces of the sea.

The importance of clearly understanding this fact as to the readiness of the "holluschickie" to haul promptly out on steadily "swept" ground, provided the weather is inviting, is very great; because, when not understood, it was deemed necessary, even as late as the season of 1872, to "rest" the hauling grounds near the village (from which all the driving has been made since), and make trips to far-away Polavina and distant Zapadnie—an unnecessary expenditure of human time, and a causeless infliction of physical misery upon phocine backs and flippers.

fog to keep the path moist and cool, quite a large number of the weakest seals in the drove will be thus laid out and left on the track. If one of these prostrate seals is not too much heated at the time, the native driver usually taps the beast over the head and removes its skin.*

PROSTRATION OF FUR-SEALS BY HEAT.—This prostration from exertion will always happen, no matter how carefully they are driven; and in the longer drives, such as 2½ and 5 miles from Zapadnie on the west, or Polavina on the north, to the village of Saint Paul, as much as 3 or 4 per cent. of the whole drive will be thus dropped on the road; hence I feel satisfied, from my observation and close attention to this feature, that a considerable number of those that are thus rejected from the drove, and are able to rally and return to the water, die subsequently from internal injuries sustained on the trip, superinduced by this over-exertion. I, therefore, think it highly improper and impolitic to extend drives of the "holluschickie" over any distance on Saint Paul Island exceeding a mile or a mile and a half; it is better for all parties concerned, and the business too, that salt-houses be erected, and killing-grounds established adjacent and contiguous to all of the great hauling-grounds, 2 miles distant from the village on Saint Paul Island, should the business ever be developed above the present limit: or should the exigencies of the future require a quota from all these places, in order to make up the 100,000 which may be lawfully taken.

ABUNDANT SUPPLY OF "HOLLUSCHICKIE."—As matters are to-day, 100,000 seals alone on Saint Paul can be taken and skinned in less than forty working days, within a radius of 1½ miles from the village, and from the salt-house at Northeast Point; hence the driving, with the exception of two experimental droves which I witnessed in 1872, has never been made from longer distances than Tolstoi to the eastward, Lukannon to the northward, and Zoltoi to the southward of the killing-grounds at Saint Paul village. Should, however, an abnormal season recur in which the larger proportion of days during the right period for taking the skins be warmish and dry, it might be necessary, in order to get even 75,000 seals within the twenty-eight or thirty days of their prime condition, for drives to be made from the other great hauling-grounds to the westward and northward, which are now, and have been for the last ten years, entirely unnoticed by the sealers.

KILLING THE SEALS.—The seals, when finally driven up on to those flats between the east landing and the village, and almost under the windows of the dwellings, are herded there until cool and rested. The drives are usually made very early in the morning, at the first breaking of day, which is 1.30 to 2 o'clock of June and July in these latitudes. They arrive and cool off on the slaughtering-grounds, so that by 6 or 7 o'clock a. m., after breakfast, the able-bodied male population turn out from the village and go down to engage in the work of slaughter. The men are dressed in their ordinary working-garb of thick flannel shirts, stout cassimere or canvas pants, over which the "tarbossa" boots are drawn; if it rains they wear their "kamlaikas," made of the intestines and throats of the sea-lion and fur-seal. Thus dressed, they are armed with a club piece, a stout oaken or hickory bludgeon, which have been made particularly for the purpose at New London, Connecticut, and imported here for this especial service. These sealing clubs are about 5 or 6 feet in length, 3 inches in diameter at their heads, and the thickness of a man's fore-

* The fur-seal, like all of the pinnipeds, has no sweat-glands; hence, when it is heated, it cools off by the same process of panting which is so characteristic of the dog, accompanied by the fanning that I have hitherto fully described; the panting and low grunting of a tired drove of seals, on a warmer day than usual, can be heard several hundred yards away. It is surprising how quickly the hair and fur will come out of the skin of a blood-heated seal—literally rubs bodily off at a touch of the finger. A fine specimen of a three-year-old "holluschak" fell in its tracks at the head of a lagoon while being driven to the village killing-grounds. I asked that it be skinned with special reference to mounting; accordingly a native was sent for, who was on the spot, knife in hand, within less than thirty minutes from the moment that this seal fell in the road; yet, soon after he had got fairly to work, patches of the fur and hair came off here and there wherever he chanced to clutch the skin.

arm where they are grasped by the hands. Each native also has his stabbing-knife, his skinning-knife, and his whetstone; these are laid upon the grass convenient, when the work of braining or knocking the seals down is in progress. This is all the apparatus which they have for killing and skinning.

THE KILLING GANG AT WORK.—When the men gather for work they are under the control of their chosen foremen or chiefs; usually, on Saint Paul, divided into two working parties at the village, and a sub-party up at Northeast Point, where another salt-house and slaughtering-field is established. At the signal of the chief the work of the day begins by the men stepping into the drove, corraled on the flats; and, driving out from it one hundred or one hundred and fifty seals at a time, make what they call a "pod," which they surround in a circle, huddling the seals one on another as they narrow it down, until they are directly within reach and under their clubs. Then the chief, after he has cast his experienced eye over the struggling, writhing "kautickie" in the center, passes the word that such and such a seal is bitten, that such and such a seal is too young, that such and such a seal is too old; the attention of his men being called to these points, he gives the word "strike," and instantly the heavy clubs come down all around, and every one that is eligible is stretched out stunned and motionless, in less time, really, than I take to tell it. Those seals spared by order of the chief now struggle from under and over the bodies of their insensible companions, and pass, hustled off by the natives, back to the sea.*

METHOD OF ALEUTS IN SKINNING FUR-SEALS.—The clubs are dropped, the men seize the prostrate seals by the hind-flippers, and drag them out, so they are spread on the ground without touching each other; then every sealer takes his knife and drives it into the heart at a point between the fore-flippers of each stunned form; the blood gushes forth, and the quivering of the animal presently ceases. A single stroke of a heavy oak bludgeon, well and fairly delivered, will crush in at once the slight, thin bones of a fur-seal's skull, and lay the creature out almost lifeless. These blows are, however, usually repeated two or three times with each animal, but they are very quickly done. The bleeding, which is immediately effected, is so speedily undertaken in order that the strange reaction, which the sealers call "heating," shall be delayed for half an hour or so, or until the seals can all be drawn out, and laid in some disposition for skinning.

I have noticed that within less than thirty minutes from the time a perfectly sound seal was knocked down, it had so "heated," owing to the day being warmer and drier than usual, that, when touching it with my foot, great patches of hair and fur scaled off. This is a rather exceptionally rapid metamorphosis—it will, however, take place in every instance within an hour or an hour and a half, on these warm days, after the first blow is struck, and the seal is quiet in death;

* The aim and force with which the native directs his blow determines the death of the seal; if struck direct and violently, a single stroke is enough; the seals' heads are stricken so hard sometimes that those crystalline lenses to their eyes fly out from the orbital sockets like hail-stones, or little pebbles, and frequently struck me sharply in the face, or elsewhere, while I stood near by watching the killing-gang at work.

A singular lurid green light suddenly suffuses the eye of the fur-seal at intervals when it is very much excited, as the "podding" for the clubbers is in progress; and, at the moment when last raising its head it sees the uplifted bludgeons on every hand above, fear seems then for the first time to possess it and to instantly gild its eye in this strange manner. When the seal is brained in this state of optical coloration, I have noticed that the opalescent tinting remained well defined for many hours to a whole day after death; these remarkable flashes are very characteristic to the eyes of the old males during their hurly-burly on the rookeries, but never appear in the younger classes unless as just described, as far as I could observe.

This tenderness and extreme susceptibility of the whole seal-tribe, save the walrus, to a blow upon the ethmoid processes, was well understood by the Ancients, and is thus expressed by them:

> Non hami penetrant phocas, sævique tridentes
> In caput incutient, et circum tempora pulsat.
> Nam subita percunt capitas per vulnera morte.
>
> *Oppian.*

hence no time is lost by the prudent chief in directing the removal of the skins as rapidly as the seals are knocked down and dragged out. If it is a cool day, after bleeding the first "pod" which has been prostrated in the manner described, and after carefully drawing the slain from the heap in which they have fallen, so that the bodies will spread over the ground just free from touching one another, they turn to and strike down another "pod"; and so on, until a whole thousand or two are laid out, or the drove, as corraled, is finished. The day, however, must be raw and cold for this wholesale method. Then, after killing, they turn to work and skin; but, if it is a warm day, every pod is skinned as soon as it is knocked down.

The labor of skinning is exceedingly severe, and is trying even to an expert, demanding long practice ere the muscles of the back and thighs are so developed as to permit a man to bend down to, and finish well, a fair day's work. The knives used by the natives for skinning are ordinary kitchen or case-handle butcher-knives. They are sharpened to cutting edges as keen as razors; but, something about the skins of the seal, perhaps fine comminuted sand along the abdomen, so dulls these knives, as the natives work, that they are constantly obliged to whet them.

The body of the seal, preparatory to skinning, is rolled over and balanced squarely on its back; then the native makes a single swift cut through the skin down along the neck, chest, and belly, from the lower jaw to the root of the tail, using, for this purpose, his long stabbing knife.* The fore and hind flippers are then successively lifted, as the man straddles the seal and stoops down to his work over it, and a sweeping circular incision is made through the skin on them just at the point where the body-fur ends; then, seizing a flap of the hide on either one side or the other of the abdomen, the man proceeds to rapidly cut with his smaller, shorter butcher-knife, the skin, clean and free from the body and blubber, which he rolls over and out from the skin by hauling upon it as he advances with his work, standing all this time stooped over the carcass so that his hands are but slightly above it or the ground. This operation of skinning a fair-sized "holluschak" takes the best men only one minute and a half; but the average time made by the gang on the ground is about four minutes to the seal. Nothing is left of the skin upon the carcass save a small patch of each upper lip on which the coarse mustache grows, the skin on the top of the lower jaw, the insignificant tail, together with the bare hide of the flippers.

* When turning the stunned and senseless carcasses, the only physical danger which the sealers run the slightest risk of, during the whole circuit of their work, occurs thus: at this moment the prone and quivering body of the "holluschak" is not wholly inert, perhaps, though it is nine times out of ten, and, as the native takes hold of a fore-flipper to jerk the carcass over on to its back, the half-brained seal rouses, snaps suddenly and viciously, often biting the hands or legs of the unwary skinners, who then come leisurely and unconcernedly up into the surgeon's office at the village for bandages, &c.; a few men are bitten every day or two during the season on the islands in this manner, but I have never learned of any serious result following in any case.

They, the sealers, as might be expected, become exceedingly expert in keeping their knives sharp, putting edges on to them as keen as razors, and in an instant detect any dullness, by passing the balls of their thumbs over the suspected edges to the blades.

The white sealers of the Antarctic always used the orthodox butchers' "steel" in sharpening their knives, but these natives never have, and probably never will abandon those little whetstones above referred to.

During the Russian management, and throughout the strife in killing by our own people, in 1868, a very large number of the skins were cut through, here and there, by the slipping of the natives' knives, when they were taking them from the carcasses, and "flensing" them from the superabundance, in spots, of blubber. These knife-cuts through the skin, no matter how slight, give great annoyance to the dresser; hence they are always marked way down in price. The prompt scrutiny of each skin on the islands, by the agent of the Alaska Commercial Company, who rejects every one of them thus injured, has caused the natives to exercise greater care, and the number now so damaged every season is absolutely trifling.

Another source of small loss is due to a habit which the "holluschickie" have of occasionally biting one another when they are being urged along in the drives, and thus crowded once in a while one upon the other; usually these examples of "noobiden" are detected by the natives prior to the "knocking down," and spared; yet those which have been nipped on the chest or abdomen cannot be thus noticed; and, until the skin is lifted, the damage is not apprehended.

BLUBBER OF FUR-SEAL: UNPLEASANT ODOR.—On the removal of the skin from the body of the fur-seal, the entire surface of the carcass is then covered with a more or less dense layer, or envelope, of a soft, oily, fat blubber, which in turn completely conceals the muscles or flesh of the trunk and neck; this fatty substance, which we now see, resembles that met with in the seals generally everywhere, only possessing that strange peculiarity not shared by any other of its kind, of being positively overbearing and offensive in odor to the unaccustomed human nostril. The rotting, sloughing carcasses around about did not, when stirred up, affect me more unpleasantly than did this strong, sickening smell of the fur-seal blubber. It has a character and appearance intermediate between those belonging to the adipose tissue found on the bodies of cetacea and some carnivora.

This continuous envelope of blubber to the bodies of the "holluschickie" is thickest in deposit at those points upon the breast between the fore-flippers, reaching entirely around and over the shoulders, where it is from 1 inch to a little over in depth. Upon the outer side of the chest it is *not half an inch in thickness, frequently not more than a quarter; and it thins out considerably* as it reaches the median line of the back. The neck and head are clad by an unbroken continuation of the same material, which varies from one-half to one-quarter of an inch in depth. Toward the middle line of the abdominal region there is a layer of relative greater thickness. This is coextensive with the sterno-pectoral mass; but it does not begin to retain its volume as it extends backward, where this fatty investment of the carcass upon the loins, buttocks, and hinder limbs fades out finer than on the pectoro-abdominal parts, and assumes a thickening corresponding to the depth on the cervical and dorsal regions. As it descends on the limbs this blubber thins out very perceptibly; and when reaching the flippers it almost entirely disappears, giving way to a glistening areolar tissue, while the flipper skin finally descends in turn to adhere closely and firmly to the tendinous ligamentary structures beneath, which constitute the tips of the *Pinnipedia*.

The flesh and the muscles are not lined between, or within, by fat of any kind. This blubber envelope contains it all with one exception—that which is found in the folds of the small intestine and about the kidneys, where there is an abundant secretion of a harder, whiter, though still offensive, fat.

FLESH OF FUR-SEAL AS AN ARTICLE OF DIET—It is quite natural and very much the fashion for our people, when they first eat a meal on the Pribylov Islands, to ask questions in regard to what seal meat looks and tastes like; some of the white residents will answer, saying that they are very fond of it, cooked so and so; others will reply that in no shape or manner can they stomach the dish. The inquirers must needs try the effect on their own palates. I frankly confess that I had a slight prejudice against seal meat at first, having preconceived ideas that it must be fishy in flavor, but I soon satisfied myself to the contrary, and found that the flesh of young seals not over three years old was full as appetizing and toothsome as most of the beef, mutton, and pork I was accustomed to at home; the following precautions must be rigidly observed, however, by the cook who prepares fur-seal steaks and sausage balls for our delectation and subsistence—he will fail, if he does not:

(1.) The meat must be perfectly cleaned of every vestige of blubber or fat, no matter how slight.

(2.) Cut the flesh, then, into very thin steaks or slices, and soak them from six to twelve hours in salt and water (a tablespoon of fine salt to a quart of fresh water); this whitens the meat and removes the residuum of dark venous blood that will otherwise give a slightly disagreeable taste, hardly definable, though existing.

(3.) Fry these steaks, or stew them *à la mode*, with a few thin slices of sweet "breakfast" bacon, seasoning with pepper and salt; a rich brown gravy follows the cooking of the meat; serve hot, and it is, strictly judged, a very excellent meal for the daintiest feeder—and I hereby recommend it confidently as a safe venture for any newcomer to make.

MEAT OF THE SEA-LION.—The flesh of young sea-lions is still better than that of the fur-seal, while the natives say that the meat of the hair-seal (*Phoca vitulina*) is superior to both, being more juicy; fur-seal meat is exceedingly dry, hence the necessity of putting bacon into the frying-pan or stew-pot with it; sea-lion flesh is an improvement in this respect, and also that its fat, strange to say, is wholly clear, white, and inodorous, while the blubber of the "holluschickie" is sickening to the smell, and will, nine times out of ten, cause any civilized stomach to throw it up as quickly as it is swallowed. The natives, however, eat a great deal of it simply because they are too lazy to clean their fur-seal cuts, and not because they really relish it.

In this connection it may be well to add, that the liver of both *Callorhinus* and *Eumetopias* is sweet and wholesome; or, in other words, it is as good as liver usually is in Fulton Market; the tongues are small, white, and fat; they are regularly cut out to some extent, and salted in ordinary water-buckets for exportation to curious friends; they have but slight claim to gastronomic favor. The natives are, however, very partial to the liver; but, though they like the tongues, yet they are too lazy to prepare them. A few of them, in obedience to pressing and prayerful appeals from relatives at Oonalashka, do exert themselves enough every season to undergo the extra labor of putting up a few barrels of fresh salted seal-meat, which, being carried down to Illoolook by the company's vessels, affords a delightful variation to the steady codfish diet of the Aleutian Islanders.

8. MANNER OF CARING FOR AND SHIPPING THE FUR-SEAL.

CURING THE RAW SKINS.—The skins are taken from the field to the salt-house where they are laid out, after being again carefully examined, one upon another, "hair to fat," like so many sheets of paper, with salt profusely spread upon the fleshy sides as they are piled up in the "kenches," or bins.* The salt-house is a large, barn-like frame structure, so built as to afford one-

*The practice of curing in early times was quite different from this rapid and effective process of salting. The skins were then all air-dried, pegged out, when "green," upon the ground, or else stretched upon a wooden trellis or frame, which stood like a rude fence adjacent to the killing grounds; it was the accumulation of such air-dried skins from the Pribylov Islands at Sitka which rotted so in 1803 that "750,000 of them were cut up or thrown out into the sea," completely destroyed. Had they been treated as they now are, such a calamity and hideous waste could not have occurred.

The method of air-drying which the old settlers employed is well portrayed by the practice of the natives up there now, who treat a few hundred sea-lion skins to the process every fall; preparing them thus for shipment to Oonalashka, where they are used by brother Aleuts in covering their bidarkies or kyacks.

The natives, in speaking to me of this matter, said that whenever the weather was rough and the wind blowing hard these air-dried seal skins, as they were tossed from the bidarrah to the ship's deck, numbers of them would frequently turn in the wind and fly clean over the vessel into the water beyond, where they were lost.

Under the old order of affairs, prior to the present management, the skins were packed up and carried on the backs of the boys and girls, women and old men, to the salt-houses or drying-frames. When I first arrived, season of 1872, a slight variation was made in this respect by breaking a small Siberian bull into harness and hitching it to a cart, in which the pelts were hauled. Before the cart was adjusted, however, and the bull taught to pull, it was led out to the killing grounds, by a ring in its nose, and literally covered with the green seal hides, which were thus packed to the kenches. The natives were delighted with even this partial assistance; but now they have no further concern about it at all, for several mules and carts render prompt and ample service. They were introduced here, first, in 1874. The Russian Alaska Company and also the Alaska Commercial Company have brought up three or four horses to Saint Paul, but they have been unfortunate in losing them all by their dying soon after landing, the voyage and the climate combined being inimical to equine health; but the mules of the present order of affairs have been successful in their transportation to and residence in the Pribylov Islands. One, the first of these horses just referred to, perhaps did not have a fair chance for its life. It was saddled one morning, and several camp-kettles, coffee-pots, &c., slung on the crupper for the use of the Russian agent, who was going up to Northeast Point for a week or ten days' visit. He got into the saddle, and while en route, near Polavina, a kettle or pot broke loose behind, the alarmed horse kicked its rider promptly off, and disappeared on a full run, in the fog, going toward the bogs of Kaninista, where its lifeless and fox-gnawed body was eventually found several days afterwards.

third of its width in the center, from end to end, clear and open as a passage-way, while on each side are rows of stanchions with sliding planks, which are taken down and put up in the form of deep bins, or boxes—"kenches," the sealers call them. As the pile of skins is laid at the bottom of an empty "kench," and salt thrown in on the outer edges, these planks are also put in place, so that the salt may be kept intact until the bin is filled as high up as a man can toss the skins. After lying two or three weeks in this style they become "pickled," and they are suited then at any time to be taken up and rolled into bundles of two skins to the package, with the hairy side out, tightly corded, ready for shipment from the islands.*

AVERAGE WEIGHT OF RAW SKINS.—The average weight of a two-year-old skin is 5½ pounds; of a three-year-old skin, 7 pounds; and of a four-year-old skin, 12 pounds, so that, as the major portion of the catch is two or three year-olds, these bundles of two skins each have an average weight of from 12 to 15 pounds. In this shape they go into the hold of the company's steamer at Saint Paul, and are counted out from it in San Francisco. Then they are either at once shipped to London by the Isthmus of Panama in the same shape, only packed up in large hogsheads of from twenty to forty bundles to the package, or expressed by railroad, via New York, to the same destination.

PACKING SKINS FOR SHIPMENT.—The work of bundling the skins is not usually commenced by the natives until the close of the last week's sealing; or, in other words, those skins which they first took, three weeks ago, are now so pickled by the salt in which they have been lying ever since as to render them eligible for this operation and immediate shipment. The moisture of the air dissolves and destroys a very large quantity of the saline preservative which the company brings up annually in the form of rock salt, principally obtained at Carmen Island, Lower California.

LAW PROTECTING THE SEALS.—The Alaska Commercial Company, by the provisions of law under which they enjoy their franchise, are permitted to take one hundred thousand male seals annually, and no more, from the Pribylov Islands. This they do in June and July of every year. After that season the skins rapidly grow worthless, as the animals enter into shedding, and, if taken would not pay for transportation and the tax. These natives are paid 40 cents a skin for the catch, and they keep a close account of the progress of the work every day; they do so, as it is all done by them, and they know within fifty skins, one way or the other, when the whole number have been secured each season. This is the only occupation of the three hundred and ninety-eight people here, and they naturally look well after it. The interest and close attention paid by these natives, on both islands, to the "holluschickie" and this business was both gratifying and instructive to me during my residence there.

ERRONEOUS POPULAR IDEAS.—The common or popular notion with regard to seal skins is that they are worn by those animals just as they appear when offered for sale; that the fur-seal swims about, exposing the same soft coat with which our ladies of fashion so delight to cover their tender forms during inclement winter. This is a very great mistake; few skins are less attractive than is the seal skin when it is taken from the creature. The fur is not visible; it is concealed entirely by a coat of stiff overhair, dull, gray-brown, and grizzled. It takes three of them to make a lady's sacque and boa, and, in order that the reason for their costliness may be apparent, I take great pleasure in submitting a description of the tedious and skillful labor necessary to their dressing ere they are fit for sale. A description of this process will be found in the Section of this report on PREPARATION OF FISHERY PRODUCTS.

*The bundled skins are carried from the salt-houses to the baidar, when the order for shipment is given, and tossed into that lighter, one by one, to be rapidly stowed; 700 to 1,200 bundles make the average single load; then, when alongside the steamer, they are again tossed up, and on her deck, from whence they are stowed in the hold.

SHIPMENT OF SEAL SKINS TO LONDON.—As I have said before, all of the fur-seal catch on Saint Paul and Saint George, and the Russian Islands to the westward, is shipped by the Alaska Commercial Company directly to London every season, and there offered for sale in the great fur warehouses of that metropolis, where fur buyers, ever since the palmy days of the Hudson Bay Company when it controlled the fur market of the world, have been accustomed to repair twice a year for the purpose of bidding in everything known to the trade that was collected over the whole world and considered of commercial importance.

9. ECONOMIC VALUE OF THE SKINS, OIL, AND FLESH OF THE FUR-SEAL.

REASON WHY FUR-SEAL-SKINS ARE ALL SOLD IN LONDON.—On account of the fact that the labor in this country, especially skilled labor, commands so much more per diem in the return of wages than it does in London or Belgium, it is not practicable for the Alaska Commercial Company, or any other company, to attempt to dress and put upon the market the catch of Bering Sea, which is almost the entire catch of the whole world. Our people understand the theory of dressing these skins perfectly, but they cannot compete with the cheaper labor of the Old World. Therefore, nine-tenths nearly of the fur-seal skins taken every year are annually purchased and dressed in London, and from thence distributed all over the civilized world where furs are worn and prized.

CAUSE OF VARYING PRICES OF DRESSED SEAL SKINS.—The great variations of the value of seal skin sacques, ranging from $75 up to $350, and even $500, is not often due to the variance in the quality of the fur originally, but it is due to the quality of the work whereby the fur was treated and prepared for wear. For instance, the cheap sacques are so defectively dyed that a little moisture causes them to soil the collars and cuffs of their owners, and a little exposure causes them speedily to fade and look ragged. A properly dyed skin, one that has been conscientiously and laboriously finished, for it is a labor requiring great patience and great skill, will not rub off or "crock" the whitest linen when moistened; and it will wear the weather, as I have myself seen it on the form of a sea captain's wife, for six and seven successive seasons, without showing the least bit of dimness or raggedness. I speak of dyeing alone; I might say the earlier steps of unhairing, in which the over hair is deftly combed out and off from the skin, heated to such a point that the roots of the fur are not loosened, while those to the coarser hirsute growth are. If this is not done with perfect uniformity, the fur will never lay smooth, no matter how skillfully dyed; it will always have a rumpled, ruffled look. Therefore the hastily dyed sacques are cheap, and are enhanced in order of value just as the labor of dyeing is expended upon them.

GRADATION OF THE FUR OF CALLORHINUS URSINUS.—The gradation of the fur of *Callorhinus* may, perhaps, be best presented in the following manner:

1 YEAR OLD ♂ : WELL GROWN: *at July 1 of every season*:

FUR fully developed as to uniform length and thickness and evenness of distribution; it is lighter in color, and softer in texture, than hereafter, during the life of the animal; average weight of skin, as removed by the sealers from the carcass, 4½ pounds.

2 YEAR OLD ♂ : WELL GROWN: *at June 1 of every season*:

FUR fully developed as to even length and thickness and uniformity of distribution; it has now attained the darker buff and fawn color, sometimes almost brown, which it retains throughout the rest of the life of the animal; it is slightly and perceptibly firmer and stiffer than it was last year, not being at all "fluffy" as in the yearling dress now; average weight of skin, as taken from the body, 5½ pounds.

3 YEAR OLD ♂ : WELL GROWN: *at June 1 of every season*:

FUR fully developed, as to even length, but a shade longer over the shoulders, where the incipient "wig" is forming; otherwise perfectly uniform in thickness and even distribution; this is the very best grade of pelt which the seal affords during its life; average weight of skin, as taken from the body, 7 pounds.

4 YEAR OLD ♂ : WELL GROWN: *at June 1 of every season:*

FUR fully developed as to even length, except a decided advance in length and perceptible stiffness over the shoulders, in the "wig"; otherwise perfectly uniform in thickness and even distribution; this grade is almost as safe to take, and as good as is the three-year-old; average weight of skin, as removed, 12 pounds.

5 YEAR OLD ♂ : WELL GROWN: *at May to June 1 every season:*

FUR fully developed, but much longer and decidedly coarser in the "wig" region; otherwise, uniform in thickness and distribution; the coarseness of the fur over the shoulders and disproportionate length thereon destroys that uniformity necessary for rating A 1 in the market; in fact it does not pay to take this skin; average weight, 16 pounds.

6 YEAR OLD ♂ : WELL GROWN: *from May to June 1 every season:*

FUR fully developed, still longer and stiffer in the "wig" region, with a slightly thinner distribution over the post-dorsal region, and shorter; this skin is never taken—it is profitless; average weight, 25 pounds.

7 YEAR OLD AND UPWARD ♂ : *from May to June 1 every season:*

FUR fully developed, but very unevenly distributed, being relatively scant and short over the posterior dorsal region, while it is twice as long and very coarse in the covering to the shoulders especially and the neck and chest. Skins are valueless to the fur trade; weights, 45 to 60 pounds.

The analysis, as above, is a brief epitome of the entire subject; only it should be added that the female skins are as finely furred as are the best grades of the males; and also, that age does not cause the quality of their pelage to deteriorate, which it does to so marked an extent in the males. But, taking them into consideration is entirely out of the question, and ought to be so forever.

The fœtal coat of the pup is composed of coarse black hair alone: the underwool not at all developed; when this is shed and the new coat put on in September and October, it is furred and haired as a yearling, which I diagnose above; this pelage has, however, no commercial value.

All the skins taken by the company for the last eight years have been prime skins, in the fair sense of the term; but all the seal-skin sacques made therefrom have not been of the first quality, by any means.

In order that the rules and regulations and the law governing and protecting the interests of the Government on these islands may be fully understood, I give them below, pages 388, 390.

OIL OF THE FUR-SEAL.—I have spoken of the blubber, and as I mentioned it, doubtless the thought will occur, what becomes of the oil contained therein; is it all allowed to waste? A most natural query, and one that I made instantly after my first arrival on the islands. I remember seeing 40 or 50 hogsheads and tierces headed up and standing near the foot of the village hill, in which there were many thousands of gallons of fur-seal oil. I asked the agent of the company when he was going to ship it; he shrugged his shoulders and said: "As soon as it will pay."

I made, during the season, careful notes as to the amount of oil represented by the blubber exposed on the 100,000 young male seal carcasses, and I found that the two and three year old "holluschickie" bodies as left by the skinner would not clean up on an average more than half a gallon of oil; while the four-year-old males would make nearly a gallon. It should be remembered that quite a large portion of the seal's fat is taken off with the skin, as its presence thereon is necessary to that proper amalgamation and preservation by the salt when it is applied to its fresh surface in the "kenches"; hence the amount of oil represented by these carcasses every year is not much over 60,000 gallons.

CONDITION OF THE FUR-SEAL OIL MARKET.—When among the seal-oil dealers in New York City, during the month of May, in 1876, I took these notes with me and investigated the standing and the demand for fur-seal oil in their market and the markets of the world; and the statements of these oil experts and dealers were all in accord as to the striking inferiority of fur-seal oil, compared with the hair-seal and sea-elephant oil, which they dealt in largely. The inferiority of the fur-seal oil is due primarily to the offensive odor of the blubber, which I have spoken of heretofore. This singularly disagreeable smell does not exist in the blubber of the hair-seal (*Phocidæ*),

the sea-elephant or sea-lion, and it makes the process of refining it very difficult. They said it was almost impossible to properly deodorize it and leave the slightest margin of profit for the manufacturer and the dealer. It was gummy and far darker in color than any other seal oil, hence it possessed little or no commercial value. Then, again, when the subject of taking oil from the seal islands of Alaska is considered, the following obstacles, in addition to the first great objection just cited, arise at once to financial success: The time, trouble, and danger in loading a vessel with oil at the islands where, on account of the absence of a harbor and the frequent succession of violent gales, a ship is compelled to anchor from 1½ to 3 miles from the coast, on which the surf is always breaking. The costs, again, of casks and cooperage will amount to 10 cents per gallon; the cost of the natives' work in securing and bringing the blubber to the try-works, 10 cents per gallon; the cost of refining it, 10 cents; and the cost of transportation of a cargo of, say, 60,000 gallons will amount to nearly 20 cents per gallon; thus making a gallon of fur-seal oil aggregate in cost to the taker 50 cents, which entails upon him nothing but pecuniary loss when the cargo goes upon the market, and where it is worth only from 40 to 50 cents retail, with a dull sale at that.*

FRAGILE CHARACTER OF FUR-SEAL BONES.—I looked at the fur-seal bones, and at first sight it seemed as though a bone factory might be established there; but a little examination of the singularly light and porous osseous structure of the *Callorhinus* quickly stifled that enterprise. The skull and larger bones of the skeleton are more like pasteboard than the bone which is so common to our minds. When dried out, the entire skeleton of a three-year-old male will not weigh 7 pounds; indeed, I am inclined to think it would be much less than that if thoroughly kiln-dried, as after the fashion of the bone-mills. Therefore, although one hundred thousand of these skeletons bleach out and are trodden down annually, upon the Pribylov Islands, yet they have not the standing for any commercial value whatsoever, considering their distance and difficulty of access from those impoverished fields where they might serve our farmers as fertilizing elements. The bones of *Callorhinus*, though apparently strong, are surprisingly light and porous; indeed, they resemble those of *Aves* more than those commonly credited to mammalia; the osseous structure, however, of *Phoca vitulina*, the hair-seal which I examined there, side by side with that of the fur-seal, was very much more solid and weighed, bone for bone of equal age, just about one-third more, the skull especially; also the shoulder-blades and the pelvic series. If the bones of the animals were not divested of their cartilaginous continuations and connections, then the aggregate weight of the fur-seal is equal to its hairy-skinned relative; the entire skeleton of a three-year-old ♂ *Callorhinus*, completely divested by sea-fleas (*Amphipoda*) of all flesh and fat, but with every ligamentary union and articulation perfect (the cartilaginous toe-ends all present), was just 8 pounds, and I have reason to believe that when it became air-dried and bleached it did not weigh more than 4 or 5. The bones of the older seals are relatively very much heavier, but only relatively; the frailness and fragility is constant through life, though the skulls of the old males do thicken up on their crests and about the rami of their jaws very perceptibly.

* In 1873, not having had any experience and not even knowing the views of the oil dealers themselves, I left the seal islands believing that if the special tax which was then laid upon each gallon of oil as it might be rendered was removed, that it would pay the manufacturer, and in this way employ the natives, many days of the year otherwise idle, profitably. The company assured me that as far as its conduct in the matter was concerned, it would be perfectly willing to employ the natives in rendering fur-seal oil, and give them all the profit, not desiring itself to coin a single penny out of the whole transaction; possibly this could be done if the special tax of 55 cents per gallon was stricken off. The matter was then urged upon the Treasury Department, by myself, in October, 1873, and the tax was repealed by the Department soon after. But it seems that I was entirely mistaken as to the quality and value of the oil itself. I made, to satisfy myself, a very careful investigation of the subject in 1876, going personally to the leading dealers in whale and seal oil of New York City, and they were unanimous in their opposition to handling fur-seal oil, some of them saying that they would not touch it at any price. I felt considerably chagrined, because had I known as much in 1873, I would have saved myself then, and my friends subsequently, a good deal of unnecessary trouble and profitless action.

Sea-lion bones are, however, normally strong and heavy; the bone of the fur-seal is evidently stout enough, but it is singularly light, while the walrus, that dull, sluggish brute, has a massive osteological frame. I made these relative examinations more especially to ascertain something which might pass for a correct estimate of what the bony waste on the killing-grounds of the Pribylov islands amounted to annually, with a view of its possible utilization. The spongy bones of the whole one hundred thousand annually laid out would not render, according to my best judgment, 50 tons of dry bone-meal—an insignificant result and unworthy of further notice on these islands.

DECAY OF SEAL CARCASSES.—Another singular and striking characteristic of the Island of Saint Paul, is the fact that this immense slaughtering-field, upon which seventy-five to ninety thousand fresh carcasses lay every season, sloughing away into the sand beneath, does not cause any sickness among the people who live right over them, so to speak. The cool, raw temperature, and strong winds, peculiar to the place, seem to prevent any unhealthy effect from the fermentation of decay. The blubber envelopes left upon the carcasses really act as air-tight retorts, holding the gases arising from the decomposition of the viscera within until they are absorbed and soak away into the sand below; the skinned carcasses seem to fairly melt down into this foundation, so that they disappear entirely the third season after their creation. The *Elymus* and other grasses once more take heart and grow with magical vigor over the unsightly spot, to which the sealing-gang again return, repeating their bateau, which we have marked before, upon this place, three years ago. In that way this strip of ground, seen on my map between the village, the east landing, and the lagoon, contains the bones and the oil-drippings and other fragments thereof, of more than three million seals slain since 1786 thereon, while the slaughter-fields at Novastoshnah record the end of a million more.

I remember well the unmitigated sensations of disgust that possessed me when I first landed, April 28, 1872, on the Pribylov islands, and passed up from the beach, at Black Bluffs, to the village, over the killing-grounds; though there was a heavy coat of snow on the fields, yet each and every one of seventy-five thousand decaying carcasses was there, and bare, having burned, as it were, their way out to the open air, polluting the same to a sad degree. I was laughed at by the residents who noticed my facial contortions, and assured that this state of smell was nothing to what I should soon experience when the frost and snow had fairly melted. They were correct; the odor along by the end of May was terrific punishment to my olfactories, and continued so for several weeks until my sense of smell became blunted and callous to this stench by sheer familiarity. Like the other old residents I then became quite unconscious of the prevalence of this rich "funk," and ceased to notice it.

Those who land here, as I did, for the first time nervously and invariably declare that such an atmosphere must breed a plague or a fever of some kind in the village, and hardly credit the assurance of those who have resided in it for whole periods of their lives that such a thing was never known to Saint Paul, and that the island is remarkably healthy. It is entirely true, however, and, after a few weeks' contact, or a couple of months' experience at the longest, the most sensitive nose becomes used to that aroma, wafted as it is hourly, day in and out, from decaying seal flesh, viscera, and blubber; and, also, it ceases to be an object of notice. The cool, sunless climate during the warmer months has undoubtedly much to do with checking too rapid decomposition, and consequent trouble therefrom, which would otherwise arise from the killing-grounds.

The freshly-skinned carcasses of this season do not seem to rot substantially until the following year; then they rapidly slough away into the sand upon which they rest; the envelope of blubber left upon each body seems to act as an air-tight receiver, holding most of the putrid gases within

that spring from the decaying viscera until this volatile tension causes it to give away; fortunately the line of least resistance to that merciful retort is usually right where it is adjacent to the soil, so both putrescent fluids and much of the stench thereof is deodorized and absorbed before it can contaminate the atmosphere to any great extent. The truth of my observation will be promptly verified if the skeptic chooses to tear open any one of the thousands of gas-distended carcasses in the fall that were skinned in the killing season; if he does so, he will be smitten by the worst smell that human sense can measure; and should he chance to be accompanied by a native, that callous individual, even, will pinch his grimy nose and exclaim, it is a "keeshla pahknoot!"

At the close of the third season after the skinning of the seal's body it will have so rotted and sloughed away as to be marked only by the bones and a few of the tendinous ligaments; in other words, it requires from thirty to thirty-six months' time for a seal carcass to rot entirely away, so nothing but whitened bones remain above ground. The natives govern their driving of the seals and laying out of the fresh bodies according to this fact; for they can, and do, spread this year a whole season's killing out over the same spot of the field previously covered with such fresh carcasses three summer's ago; by alternating with the seasons thus, the natives are enabled to annually slaughter all of the "holluschickie" on a relatively small area, close by the salt-houses, and the village, as I have indicated on the map of Saint Paul's.

DESCRIPTION OF KILLING-GROUND OF SAINT PAUL.—The killing-ground of Saint Paul is a bottomless sand flat, only a few feet above high water, and which unites the village hill and the reef with the island itself; it is not a stone's throw from the heart of the settlement—in fact, it is right in town—not even suburban.

DESCRIPTION OF THE KILLING-GROUND AT SAINT GEORGE.—On Saint George the "holluschickie" are regularly driven to that northeast slope of the village hill, which drops down gently to the sea, where they are slaughtered, close by and under the houses, as at Saint Paul; those droves which are brought in from the North Rookery to the west, and also Starry Ateel, are frequently driven right through the village itself. This slaughtering field of Saint George is hard tufa and rocky, but it slopes down to the ocean rapidly enough to drain itself well; hence the constant rain and humid fogs of summer carry off that which would soon clog and deprive the natives from using the ground year after year in rotation, as they do. Several seasons have occurred, however, when this natural and heavenly cleansing of the ground above-mentioned has not been as thorough as must be to be used again immediately; then the seals were skinned back of the village hill, and in the ravine to the west on the same slope from the summit.

This village site of Saint George to-day, and the killing-grounds adjoining, used to be, during early Russian occupation, in Pribylov's time, a large sea-lion rookery, the finest one known to either island, Saint Paul or Saint George. Natives are living there who told me that their fathers had been employed in shooting and driving these sea-lions so as to deliberately break up the breeding-ground, and thus rid the island of what they considered a superabundant supply of the *Eumetopias*, and thereby to aid and encourage the fresh and increased accession of fur-seals from the vast majority peculiar to Saint Paul, which could not take place while the sea-lions held the land.*

* The Saint Paul village site is located wholly on the northern slope of the village hill, where it drops from its greatest elevation, at the flag-staff, of 125 feet gently down to the sandy killing-flats below and between it and the main bod of the island. The houses are all placed facing the north, at regular intervals along the terraced streets, which run east and west. There are sixty-four or seventy native houses, ten large and smaller buildings of the company, the treasury agent's residence; the church, the cemetery crosses, and the school building are all standing here in coats of pure white paint. The survey of the town site, when rebuilt, was made by Mr. H. W. McIntyre, of the Alaska Commercial Company, who himself planned and devised the entire construction. No offal or decaying refuse

10. THE RUSSIAN SEAL INDUSTRY AT THE PRIBYLOV ISLANDS.*

From the time of the discovery of the Pribylov Islands up to 1805 (or, that is, until the time of the arrival in America of General Resanov), the taking of fur-seals on both islands progressed without count or lists, and without responsible heads or chiefs, because then (1787 to 1805, inclusive) there were a number of companies, represented by as many agents or leaders, and all of them vied with each other in taking as many as the could before the killing was stopped. After this, in 1806 and 1807, there were no seals taken, and nearly all the people were removed to Oonalashka.

In 1808 killing was again commenced, but the people in this year were allowed to kill only on Saint George. On Saint Paul hunters were not permitted this year or the next. It was not until the fourth year after this that as many as half the number previously taken were annually killed. From this time (Saint George 1808, and Saint Paul 1810) up to 1822, taking fur-seals progressed on both islands without econemy and with slight circumspection, as if there were a race in killing for the most skins. Cows were taken in the drives and killed, and were also driven from the rookeries to places where they were slaughtered.

It was only in 1822 that G. Moorayvev (governor) ordered that young seals should be spared every year for breeding, and from that time there were taken from the Pribylov Islands, instead of 40,000 to 50,000, which Moorayvev ordered to be spared in four successive years, no more than 8,000 to 10,000. Since this, G. Chestyahkov, chief ruler after Moorayvev, estimated that from the increase resulting from the legislation of Moorayvev, which was so honestly carried out on the Pribylov Islands that, in these four years the seals on Saint Paul had increased to double their previous number, (that) he could give an order which increased the number to be annually slain to 40,000; and this last order, or course, directed for these islands, demanded as many seals as could be got; but with all possible exertion hardly 28,000 were obtained.

After this, when it was most plainly seen that the seals were, on account of this wicked killing, steadily growing less and less in number, the directions were observed for greater caution in killing the grown seals and young females, which came in with the droves of killing-seals, and to endeavor to separate, if possible, these from those which should be slain.

But all this hardly served to do more than keep the seals at one figure or number, and hence did not cause an increase. Finally, in 1834, the governor of the company, upon the clear (or "handsome") argument of Baron Wrangel, which was placed before him, resolved to make new regulations respecting them, to take effect in the same year (1834), and, following this, on the island of Saint Paul only 4,000 were killed, instead of 12,000.

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of any kind is allowed to stand around the dwellings or lie in the streets. It required much determined effort on the party of the whites to effect this sanitary reform, but now most of the natives take equal pride in keeping their surroundings clean and unpolluted.

The sight of the Saint George settlement is more exposed and bleak than is the one we have just referred to on Saint Paul. It is planted directly on the rounded summit of one of the first low hills that rise from the sea on the north shore; indeed, it isthe only hill that does slope directly and gently to the salt water on the island. Here are twenty-four to thirty native cottages, laid with their doors facing the opposite sides of a short street between, running also east and west, as at Saint Paul. There, however, each house looks down upon the rear of its neighbor, in front and below. Here the houses face each other, on the top of the hill. The treasury agent's quarters, the company's six or seven buildings, the school-house, and the church are all neatly painted, and this settlement, from its prominent position, shows from the sea to a much better advantage than does the larger one of Saint Paul. The same municipal sanitary regulations are enforced here.

* Translated, by the author, from Veniaminov's Zapieskie, &c., St. Petersburg, 1842, vol. ii, pp. 568. The italics are the author's, and the translation is nearly literal, as might be inferred by the idiom here and there.—H. W. E.

On the island of Saint George the seals were allowed to rest in 1826 and 1827, and since that time greater caution and care have been observed, and headmen or foremen have kept a careful count of the killing.*

RUSSIAN WASTE AND SLAUGHTER.—In the first years, on Saint Paul Island, from 50,000 to 60,000 seals were taken annually, and on Saint George from 40,000 to 50,000 every year. Such horrible killing was neither necessary nor demanded. The skins were frequently taken without any list or count. In 1803, 800,000 seal-skins had accumulated, and it was impossible to make advantageous sale of so many skins; for in this great number so many were spoiled that it became necessary to cut or throw into the sea 700,000 pelts. If G. Resanov (our minister to Japan) had not given this his attention, and put himself between the animals and this foolish management of them, it appears plainly to me that these creatures would have long ago changed for the worse.

NO RECORDS PRIOR TO 1817: EARLY DRIVING.—Of the number of skins taken up to 1817, I have no knowledge to rely upon, but from that time and up to the present writing I have true and reliable accounts, from which it appears that still in 1820, on both islands, there were killed more than 50,000 seals, viz, on Saint Paul, 39,700; and on Saint George, 10,250. There were eye-witnesses to the reason for this diminution of the seals, and it is only wonderful, beside, that they are still existing, as they have been treated almost without mercy so many years. The cows produce only one pup each, every year. They have known deadly enemies, and also are still exposed to many foes unknown. From this killing of the seals they steadily grew less, except on one occasion, which was on Saint George Island, where an opportunity was given suddenly to kill a large number; but the circumstances do not seem to be important. On this occasion a drive was made of 15,000 male and female seals, but the night was dark, and it was not practicable to separate the cows from the males, and they were therefore allowed to stand over until daylight should come. The men put in charge of the herding of the drove were careless, and the seals took advantage of that negligence and made an attempt to escape by throwing themselves from the bluffs over the beach near by into the sea: but, as this bluff was steep, high, rough, and slippery, they fell over and were all injured. Now, for the first time, great numbers of seals were missed, and why, it was not significant or apparent; but in the following year, instead of the appearance and catch of 40,000 or 50,000, less than 30,000 were killed and taken, and then, too, the numbers of seals were known to diminish, and in the same way, only greater, on the other island. For instance, in the first years, on the island of Saint George, the seals were only five or six times less than on Saint Paul, but in 1817 they were only less than one-fourth; but in 1826 they were almost one-sixth again.

The diminution of seals there (Saint Paul) and on the other island, from 1817 to 1835, was very gradual and visible every year, but not always equal.

The killing of seals in 1834, instead of being 80,000 or 60,000, was only 15,751 from both islands (Saint Paul, 12,700; Saint George, 3,051).

SUM TOTAL OF FUR-SEALS TAKEN.—In the first thirty years (according to Veniaminov's best understanding), there were taken "more than two and a half millions of seal-skins;" then, in the next twenty-one years, up to 1838, they took 578,924. During this last taking, from 1817 to 1838, the skins were worth on an average "no more than 30 rubles each" ($6 apiece).

A great many sea-otters (*Enhydra marina*) were found on Saint Paul Island at first, and as many as 5,000 were taken from the island, but years have passed since one has been seen in the vicinity, even, of the islands.

* A considerable portion of the translation is here omitted. This contains a very interesting exhibition of the results of the legal protection of the seals, and tables showing the annual capture from year to year. See Elliott's Report, Tenth Census, vol. 8, pp. 142, 144.

AN EXHIBIT OF VALUES GIVEN BY VENIAMINOV.—Pt. i: *Zapieskie, &c.*, p. 83, showing the relative importance, commercially, of the land and marine furs taken from the Oonalashka district (and sold) in 1833, by the Russian-American Company. (This district embraces the Pribylov Islands.)

Sort of fur.	Number of skins.	Price per skin.	Sum of value.	Reduced to our currency.	Remarks by the author, H. W. E.
Sea-otters	100	450 paper rubles	45,000	$9,000	*Enhydra marina.*
Black foxes	300	150 paper rubles	45,000	9,000	*Vulpes fulvus* var. *argentatus.*
Cross foxes	600	25 paper rubles	15,000	3,000	*Vulpes fulvus* var. *decussatus.*
Red foxes	500	10 paper rubles	5,000	1,000	*Vulpes fulvus.*
Blue foxes	1,500	10 paper rubles	15,000	3,000	*Vulpes lagopus.*
Land-otters	80	50 paper rubles	4,000	800	*Lutra canadensis.*
Fur-seals	15,000	50 paper rubles	750,000	150,000	*Callorhinus ursinus.*
Walrus-ivory	100 poods	80 paper rubles	8,000	1,600	A "pood" is 36.1 pounds avoirdupois.
Whalebone	200 poods	40 paper rubles	8,000	1,600	The baleen from the right whale, *Balæna.*
Miscellaneous furs			1,000	200	Deer and sea-lion skins, odds and ends, &c.
Sum total			896,000	179,200	

* * * "The country (Alaska) is divided up into five districts: Sitka, Kadiak, Oonalashka, Atka, and the North." * * *

This whole country is under the control and government of the "Russian American Company." * * * The business is conducted with a head, or a colonial governor, assisted by officers of the Imperial navy (Russian), and those of the company's fleet, and other chiefs; in every one of the districts the company has an office, which is under the direction of an office chief (or agent), and he in turn has foremen (or "bidarsheeks").

* * * "The company on the island of Saint Paul killed from 60,000 to 80,000 fur-seals per annum, but in the last time (1833?), with all possible care in getting them, they took only 12,000. On the island of Saint George, instead of getting 40,000 or 35,000, only 1,300 were killed." * * * [Veniaminov: *Zapieskie, &c.*, Pt. i: chap. xii, 1840.]

The table and extracts which I quote above give me the only direct Russian testimony as to the value of the Pribylov fur-seal catch when the skins were in scant supply. It will be seen that they were worth then only $10 each.

I now append a brief but significant extract from Techmainov—significant simply because it demonstrates that all Russian testimony, other than Veniaminov's, is utterly self-contradictory in regard to the number of seals taken from the Pribylov Islands. Techmainov first gives a series of tables which he declares are a true transcript and exhibit of the skins sold out of Alaska by the Russian-American Company. The latest table presented, and up to the date of his writing, 1862, shows that 372,894 fur-seal skins were taken from the Pribylov Islands, via Sitka, to the Russian markets of the world, in the years 1842–1862, inclusive; or giving an average catch of 18,644 per annum (p. 221). Then, further on, as he writes (nearly one hundred pages), he stultifies his record above quoted by using the language and figures as follows:

* * * "In earlier times more were taken than in the later; at present (1862) there are taken from the island of Saint Paul 70,000 annually without diminishing the number for future killing; on Saint George, 6,000. * * * From 1842 to 1861 there were taken from the island of Saint Paul 277,778 seal-skins; blue foxes, 10,508; walrus teeth, 104 poods; from Saint George, 31,923 fur-seals; blue foxes, 24,286." [*P. Techmainov, Ecstorecheskoi Obozeraini Obrazovania Russian-American Company, pt. ii, p.* 310, 1863, *St. Petersburg.*] Further comment is unnecessary upon this author, who thus writes a "history of the doings of the Russian-American Company." Still, since Veniaminov's time, 1838–1840, it is the only *prima facie* testimony that we have touching these subjects while under Russian domination.

11. THE ORGANIZATION OF THE RUSSIAN-AMERICAN FUR COMPANY.

PRIBYLOV ISLANDS PASS INTO ITS CONTROL.—The mention made by Veniaminov, of that occupation of the Pribylov Islands immediately after their discovery by a score or so of rival traders and their butchering suites, is authentic; it is not necessary to paint the selfish details of the mercenary crews, as I find them drawn in several Russian chronicles. In 1799 the whole territory of Alaska went into the control of the Russian-American Company, and a picture of this organization which managed affairs on the seal-islands for sixty-seven long years, may be interesting in this connection.

CAUSES OF EARLY RUSSIAN FUR-TRADE.—The accidental circumstances connected with Bering's ill-fated voyage in 1741 were the first direct means of impetus given to Russian exploration and trade in the waters of the North Pacific and Bering Sea; the skins of the sea-otter and the blue foxes, in especial, which the survivors took from Bering Island back to Kamtchatka and Russia, sold for such high prices that it stimulated a large number of hardy, reckless men to scour those seas in search of fur-bearing lands. This trade, thus commenced, was for many years carried on by individual adventurers, each of whom acted alternately as a seaman, as a hunter, and as a trader, solely for his individual profit.

INCEPTION OF THE RUSSIAN-AMERICAN COMPANY.—At length, however, an association was formed in 1785 among a number of Siberian merchants to carry on the fur trade of the North Pacific. It received the protection and encouragement of the Empress Catherine, who bestowed upon it many valuable privileges. G. Shellikov was the ruling spirit of the corporation. Catherine's son and successor, Paul, was, at the outset of his reign, disposed to abolish these imperial advantages extended to this company by his mother on account of the heartless conduct of affairs in Alaska. Reasons of state, however, caused him to abandon this resolution, and he issued a "ukase," dated July 8, 1799, which granted to these united merchants aforesaid a charter, under the title of the Russian-American Company, that gave them exclusive use and control, for a period of twenty years, of all the coasts of America on the Pacific and the islands in that ocean, from Bering Strait to the 55th degree of south latitude, together with the right of occupying any other territories not previously possessed by civilized nations. The residence of the directors of this company was first fixed at Irkutsk, Siberia, which was the great depository or bonded warehouse for the Chinese trade with all the Russias, a short distance only from Kiachta, on the frontier, where the Mongols and Muscovites alone could meet for barter. It was afterward transferred to St. Petersburg, and these directors were personally made known to and placed under the surveillance of the imperial department of commerce.

Those privileges thus accorded by Paul were confirmed and extended, even, by Alexander, and under these favorable auspices the power and influence of the Russian-American Company rapidly advanced. In 1803 its establishments extended from Attoo to Sitka; during 1806 preparations were made to occupy the north of the Columbia River, but that plan was soon abandoned.

AUTOCRATIC POWER OF THE RUSSIAN-AMERICAN COMPANY.—The government of Alaska by this company was arranged and directed in simple despotism; each trading post was superintended by a Russian overseer or "precashcheek," who, with the aid of a small number of Russians, maintained absolute control over all the natives in his district; he compelled them to labor incessantly, in and out of season, for the benefit of the company. These overseers were in turn under subserviency to a chief agent, one of which resided in the limits of four natural divisions of the country; these men were again directly responsible to the authority of the governor-general, who resided at Sitka, and who was appointed really by the Imperial Government, though nomi-

nally by the directors; his powers were supposed to be limited and defined by regulations drawn up and signed by him in St. Petersburg; but, in fact, they were absolute, and irresponsible to any court on earth.

THE IRON-WILLED BARANOV.—The person who filled the office of governor-general soon after the organization of the Russian-American Company and for many years afterward, was Alexander Baranov; he was a man of iron will, of dauntless courage, shrewd, and wholly devoid of tender feeling. Under his autocratic management the affairs of this company prospered pecuniarily, and its stock rose accordingly in value; hence his proceedings were always approved at St. Petersburg.

BAD REPUTATION OF PROMYSHLINEKS.—In addition to the natives themselves, the company transported to Alaska some four or five hundred Russians, who were termed "promyshlineks," or "hunters." They were employed as trappers, fishermen, seamen, soldiers, or mechanics, just as their superiors might demand, and they were under the same rule as that I have just described as applicable to the natives; their lot, according to Krusenstern, a Russian who voyaged thither in 1804–1805, seems to have been more uninviting even than that of the wretched natives.

BARANOV'S ATTEMPT TO COLONIZE CALIFORNIA.—Prior to 1812 Sitka was the extreme southern limit of the Russian-American Company. But old Baranov, greatly annoyed by the loss of supply ships from the Okhotsk, by which their bread at Kadiak and Sitka was cut off for years at a time, determined to settle somewhere south, where these necessaries to a comfortable physical existence could be raised from the soil; so he asked the Spanish governor at Monterey permission to erect a few houses on the shore of the small bay of Bodega, California, in order to "procure and salt the meat of the wild cattle," which overran that part of the country north of the harbor of San Francisco, for the "use of the governor's table at New Archangel" (Sitka). The Castilian was only too happy to oblige a peer; but in the course of two or three years after this permit was given, the Russians had formed a large settlement and built a fort. The Spanish governor at first remonstrated, then commanded Baranov to move off, in the name of his most Catholic Majesty, the King of Spain. The Spaniard could not enforce this order. The Russian-American Company remained here unmolested until 1842, when they sold their fixtures to General Sutter, a Swiss-American, for $30,000, and vacated California.

ATTEMPT TO SECURE THE SANDWICH ISLANDS.—In 1815 Baranov, instead of feeling chilled by the California unpleasantness, then in full headway, turned his ambitious eyes to the Sandwich Islands, and actually dispatched a vessel, or rather two of them, under the direction of Dr. Shaeffer, a German surgeon, who landed on Atooi, with one hundred picked Aleuts; but they were, at the lapse of a year, so discouraged by the open opposition of the Russian Government to this scheme that they abandoned the project.

RAPID DECAY OF THE RUSSIAN-AMERICAN COMPANY AFTER DEATH OF BARANOV.—In 1862, when the third extension of twenty years' lease had expired, the affairs of the Russian-American Company were in a bad condition financially—deeply in debt, and the Imperial Government was not disposed to renew the charter. This state of affairs gave rise in 1864–1867 to negotiation with other trading organizations for the lease, which finally culminated in the purchase of Alaska by our Government July, 1867. Such, in brief, was the Russian-American Company; it flourished under Baranov, but declined steadily to bankruptcy twenty years after his removal, when eighty years old, on account of extreme age, in 1818. In short its great compeer, the Hudson Bay Company, was very much earlier initiated in the same manner June, 1670, then it organized with the Northwest Company under its present title, with renewed royal prerogatives

and despotic sway over all British North America in 1821; it, too, has declined to a commercial cipher to day, with its autocratic rights abolished long since; in 1857, I think, they were wholly rescinded.

FIRST EXEMPTION OF FEMALES IN DRIVING.—In the details of an old letter from the Russian agent of the Russian-American Company, on Saint Paul, in 1847, I find the following side reference to the number of skins which were shipped from the Pribylov Islands that season: [Ms. letter of Kazean Shiesneekov, Saint Paul Island, 1847.]

5,607 "holluschickov" (young males).
1,890 "sairiee" (4 and 5 year-old males), or a total of 7,497.

This is interesting because it is the record of the first killing on the seal-islands when the females were entirely exempted from slaughter.

THE SEAL-ISLANDS WERE THE EXCHEQUER OF THE RUSSIAN-AMERICAN COMPANY: 1799–1825.—"The Russians in their colonial possession under Baranov, made, first, the seal-skin the basis of all transactions with foreigners by buying up whole cargoes of goods and provisions brought into this country by English and American traders, and paying for the same in this way. In other words, the seal-islands were the exchequer where the Russian authorities could with certainty turn and lay their hands upon the necessary currency. These American, English, and other foreign sea captains having disposed of their supplies at Sitka or Kadiak in this manner, took their fur-seal skins to China and disposed of them at a handsome advance for tea, rice, &c., in exchange. The profits made by these foreigners having reached the ears of the Russian home management of the fur company controlling Alaska, it was ordered then that payments in fur-seal skins for these foreign supplies should cease, and that the Russians themselves would ship their skins to China and enjoy the emolument thereof. The result of this action was that the Chinese market did not prove as valuable to them as it was to the foreigners; it became overstocked, and a general stagnation and depression of the seal business took place and continued until a change of base in this respect was again made, and the skins of the fur-seal were shipped, together with the beaver, in bulk to the great Chinese depot of Kiakhta, where the Russians exchanged these peltries for the desired supplies of tea; the trade thereof assuming such immense proportions that the record is made where in a single year the Russian Fur Company paid to their Government the enormous duty upon importations of tea alone of 2,000,000 silver rubles, or $1,500,000. This was the period in the history of the seal-islands when, for a second time, and within the writing of Veniaminov, the seal life thereon was well nigh exterminated. The first decimation of these interests took place in the last decade of the eighteenth century and shortly after the discovery of the islands, when, it is stated, two million skins of these animals were rotting on the ground at one time. Rezanov applied the correction very promptly in the first instance of threatened extermination of these valuable interests, and when the second epoch of decimation occurred, in 1834 to 1836, Baron Wrangell, admirably seconded by Father Veniaminov, checked its consumption. These are instances of care and far-sightedness which are refreshing to contemplate."*

12. THE ALASKA COMMERCIAL COMPANY.

OCCUPATION OF THE ISLANDS BY AMERICANS IN 1868.—The Alaska Commercial Company deserves and will receive a brief but comprehensive notice at this point. In order that we may follow it to these islands, and clearly and correctly appreciate the circumstances which gave it footing and finally control of the business, I will pass back and review the chain of evidence adduced in this direction from the time of our first occupation, in 1867, of the Territory of Alaska.

* IVAN PETROV: Rept. on Pop. and Resources of Alaska, Ex. Doc. No. 40, 46th Cong., 3d sess., 1881.

It will be remembered by many people that when we were ratifying the negotiation between our Government and that of Russia it was apparent that nobody in this country knew anything about the subject of Russian America. Every schoolboy knew where it was located, but no professor or merchant, however wise or shrewd, knew what was in it. Accordingly, immediately after the purchase was made and the formal transfer effected, a large number of energetic and speculative men, some coming from New England even, but most of them residents of the Pacific coast, turned their attention to Alaska. They went up to Sitka in a little fleet of sail and steam vessels, but among their number it appears there were only two of our citizens who knew of or had the faintest appreciation as to the value of the seal-islands. One of these, Mr. H. M. Hutchinson, a native of New Hampshire, and the other, Captain Ebenezer Morgan, a native of Connecticut, turned their faces in 1868 toward them. Also, they were known to Captain Gustav Niebaum, who, as an ex-employé of the Russian American company, became a United States citizen by the terms of the treaty of transfer in 1867. Captain Niebaum was the first to put in an appearance on the Seal Islands after the new order of ownership was proclaimed, for he knew the character of the business thoroughly. He was almost immediately followed by Messrs. Hutchinson and Morgan. Mr. Hutchinson gathered his information at Sitka—Captain Morgan had gained his years before by experience on the South Sea sealing-grounds. Mr. Hutchinson represented a company of San Francisco or California capitalists when he landed on Saint Paul; Captain Morgan represented another company of New London capitalists and whaling merchants. They arrived almost simultaneously, Morgan a few days or weeks anterior to Hutchinson. He had quietly enough commenced to survey and pre-empt the rookeries on the islands, or, in other words, the work of putting stakes down and recording the fact of claiming the ground, as miners do in the mountains; but later agreed to co-operate with Mr. Hutchinson. These two parties passed that season of 1868 in exclusive control of those islands, and they took an immense number of seals. They took so many that it occurred to Mr. Hutchinson unless something was done to check and protect these wonderful rookeries, which he saw here for the first time, and which filled him with amazement, that they would be wiped out by the end of another season; although he was the gainer then, and would be perhaps at the end, if they should be thus eliminated, yet he could not forbear saying to himself that it was wrong and should not be. To this Captains Morgan and Niebaum also assented.

The island of Saint George in 1868 was occupied by their deputies, though all the sealing there was done entirely by the natives, the white men giving their chief concern to Saint Paul, where the vast bulk of seal life was exhibited.

ORGANIZATION OF THE ALASKA COMMERCIAL COMPANY.—In the fall of 1868 Mr. Hutchinson and Captain Morgan, by their personal efforts, interested and aroused the Treasury Department and Congress, so that a special resolution was enacted declaring the seal-islands a governmental reservation, and prohibiting any and all parties from taking seals thereon until further action by Congress. In 1869 seals were taken on those islands, under the direction of the Treasury Department, for the subsistence of the natives only; and in 1870 Congress passed the present law, a copy of which I append, for the protection of the fur-bearing animals on those islands, and under its provisions, and in accordance, after an animated and bitter struggle in competition, the Alaska Commercial Company, of which Mr. Hutchinson was a prime organizer, secured the award and received the franchise which it now enjoys and will enjoy for another decade. The company is an American corporation, with a charter, rules, and regulations, which I reproduce herein on a subsequent page. They employ a fleet of vessels, sail and steam: four steamers, a dozen or fifteen ships, barks, and sloops. Their principal occupation and attention is given naturally to the seal-islands, though they have stations scattered over the Aleutian Islands and that portion of Alaska west and north of Kadiak. No post of theirs is less than 500 or 600 miles from Sitka.

Outside of the seal-islands all trade in this Territory of Alaska is entirely open to the public. There is no need of protecting the fur-bearing animals elsewhere, unless it may be by a few wholesome general restrictions in regard to the sea-otter chase. The country itself protects the animals on the mainland and other islands by its rugged, forbidding, and inhospitable exterior.

The Treasury officials on the seal-islands are charged with the careful observance of every act of the company; a copy of the lease and its covenant is conspicuously posted in their office; is translated into Russian, and is familiar to all the natives. The company directs its own labor, in accordance with the law, as it sees fit; selects its time of working, &c. The natives themselves work under the direction of their own chosen foremen, or "toyone." These chiefs call out the men at the break of every working-day, divide them into detachments according to the nature of the service, and order their doing. All communications with the laborers on the sealing-ground and the company passes through their hands; these chiefs having every day an understanding with the agent of the company as to his wishes, and they govern themselves thereby.

METHODS OF BUSINESS.—The company pays 40 cents for each skin that is taken. The natives take the skins on the ground; each man tallying his work and giving the result at the close of the day to his chief or foreman. When the skins are brought up and counted into the salt-houses, where the agent of the company receives them from the hands of the natives, the two tallies usually correspond very closely, if they are not entirely alike. When the quota of skins is taken, at the close of two or three or four weeks of labor, as the case may be, the total sum for the entire catch is paid over in a lump to the chiefs, and these men divide it among the laborers according to their standing as workmen, which they themselves have exhibited on their special tally-sticks. For instance, at the annual divisions, or "catch" settlement, made by the natives on Saint Paul Island among themselves, in 1872, when I was present, the proceeds of their work for that season in taking and skinning 75,000 seals, at 40 cents per skin, with extra work connected with it, making the sum of $30,637.37, was divided among them in this way: There were seventy-four shares made up, representing seventy-four men, though in fact only fifty-six men worked, but they wished to give a certain proportion to their church, a certain proportion to their priest, and a certain proportion to their widows; so they water their stock, commercially speaking. The seventy-four shares were proportioned as follows:

37 first-class shares, at	$451 22 each.
23 second-class shares, at	406 08 each.
4 third-class shares, at	360 97 each.
10 fourth-class shares, at	315 85 each.

These shares do not represent more than fifty-six able-bodied men.

In August, 1873, while on Saint George Island, I was present at a similar division, under similar circumstances, which caused them to divide among themselves the proceeds of their work in taking and skinning 25,000 seals, at 40 cents a skin, $10,000. They made the following subdivision:

	Per share.
17 shares each, 961 skins	$384 40
2 shares each, 935 skins	374 00
3 shares each, 821 skins	328 40
1 share each, 820 skins	328 00
3 shares each, 770 skins	308 00
3 shares each, 400 skins	160 00

These twenty-nine shares referred to as above, represent only twenty-five able-bodied men; two of them were women. This method of division as above given is the result of their own choice. It is an impossible thing for the company to decide their relative merits as workmen on the ground, so they have wisely turned its entire discussion over to them. Whatever they do they must agree

to—whatever the company might do they possibly and probably would never clearly understand, and hence dissatisfaction and suspicion would inevitably arise; as it is, the whole subject is most satisfactorily settled.

THE METHODS OF THE ALASKA COMMERCIAL COMPANY.—Living as the seal-islanders do, and doing what they do, the seal's life is naturally their great study and objective point. It nourishes and sustains them. Without it they say they could not live, and they tell the truth. Hence, their attention to the few simple requirements of the law, so wise in its provisions, is not forced or constrained, but is continuous. Self-interest in this respect appeals to them keenly and eloquently. They know everything that is done and everything that is said by anybody and by everybody in their little community. Every seal-drive that is made and every skin that is taken is recorded and accounted for by them to their chiefs and their church when they make up their tithing-roll at the close of each day's labor. Nothing can come to the islands by day or by night without being seen by them and spoken of. I regard the presence of these people on the island at the transfer, and their subsequent retention and entailment in connection with the seal business, as an exceedingly good piece of fortune, alike advantageous to the Government, to the company, and to themselves.

It will be remembered that at the time the question of leasing the islands was before Congress much opposition to the proposal was made on several grounds, by two classes, one of which argued against a "monopoly," the other urging that the Government itself would realize more by taking the whole management of the business into its own hands. At that time, far away from Washington, in the Rocky Mountains, I do not know what arguments were used in the committee rooms, or who made them; but since my careful and prolonged study of the subject on the ground itself, and of the trade and its conditions, I am now satisfied that the act of June, 1870, directing the Secretary of the Treasury to lease the seal-islands of Alaska to the highest bidder, under the existing conditions and qualifications, did the best and the only correct and profitable thing that could have been done in the matter, both with regard to the preservation of the seal life in its original integrity and the pecuniary advantage of the Treasury itself. To make this statement perfectly clear the following facts, by way of illustration, should be presented:

First. When the Government took possession of these interests, in 1868 and 1869, the gross value of a seal-skin laid down in the best market, at London, was then less in some instances and in others but slightly above the present tax and royalty paid upon it by the Alaska Commercial Company.

Second. Through the action of the intelligent business men who took the contract from the Government, in stimulating and encouraging the dressers of the raw material, and in taking sedulous care that nothing but good skins should leave the islands, and in combination with leaders of fashion abroad, the demand for the fur, by this manipulation and management, has been wonderfully increased.

Third. As matters now stand, the greatest and best interested of the lessees are identical with those of the Government; what injures one instantly injures the other. In other words, both strive to guard against anything that shall interfere with the preservation of the seal life in its original integrity, and both having it to their interest, if possible, to increase that life; if the lessees had it in their power, which they certainly have not, to ruin these interests by a few seasons of rapacity, they are so bonded and so environed that prudence prevents it.

Fourth. The frequent changes in the office of the Secretary of the Treasury, who has very properly the absolute control of the business as it stands, do not permit upon his part that close, careful scrutiny which is exercised by the lessees, who, unlike him, have but their one purpose to

carry out. The character of the leading men among them is enough to assure the public that the business is in responsible hands and in the care of persons who will use every effort for its preservation and its perpetuation, as it is so plainly their best end to serve. Another great obstacle to the success of the business, if controlled entirely by the Government, would be encountered in disposing of the skins after they had been brought down from the islands. It would not do to sell them up there to the highest bidder, since that would license the sailing of a thousand ships to be present at the sale. The rattling of their anchor-chains and the scraping of their keels on the beaches of the two little islands would alone drive every seal away and over to the Russian grounds in a remarkably short space of time. The Government would therefore need to offer them at public auction in this country, and it would be simply history repeating itself—the Government would be at the mercy of any well-organized combination of buyers. The agents conducting the sale could not counteract the effect of such a combination as can the agents of a private corporation, who may look after their interest in all the markets of the world in their own time, and in their own way, according to the exigencies of the season and the demand, and who are supplied with money which they can use, without public scandal, in the manipulation of the market. On this ground I feel confident in stating that the Treasury of the United States receives more money, net, under the system now in operation than it would by taking the exclusive control of the business. Were any capable Government officer supplied with, say, $100,000, to expend in "working the market," and intrusted with the disposal of 100,000 seal-skins wherever he could do so to the best advantage of the Government, and were this agent a man of first-class business ability and energy, I think it quite likely that the same success might attend his labor in the London market that distinguishes the management of the Alaska Commercial Company. But imagine the cry of fraud and embezzlement that would be raised against him, however honest he might be! This alone would bring the whole business into positive disrepute, and make it a national scandal. As matters are now conducted, there is no room for any scandal—not one single transaction on the islands but what is as clear to investigation and accountability as the light of the noon-day sun; what is done is known to everybody, and the tax now laid upon by the Government and paid into the Treasury every year by the Alaska Commercial Company yields alone a handsome rate of interest on the entire purchase money expended for the ownership of all Alaska.

It is frequently urged with great persistency, by misinformed or malicious authority, that the lessees can and do take thousands of skins in excess of the law, and this catch in excess is shipped *sub rosa* to Japan from the Pribylov Islands. To show the folly of such a move on the part of the company, if even it were possible, I will briefly recapitulate the conditions under which the skins are taken. The natives themselves of Saint Paul and Saint George do, in the manner I have indicated, all the driving and skinning of the seals for the company. No others are permitted or asked to land upon the islands to do this work, as long as the inhabitants of the islands are equal to it. They have been equal to it and they are more than equal to it. Every skin taken by the natives is counted by themselves, as they get 40 cents per pelt for that labor; and at the expiration of each day's work in the field, the natives know exactly how many skins have been taken by them, how many of these skins have been rejected by the company's agent, because they were carelessly cut and damaged in skinning—usually about three-fourths of 1 per cent. of the whole catch—and they have it recorded every evening by those among them who are charged with the duty. Thus, were 101,000 skins taken instead of 100,000 allowed by law, the natives would know it as quickly as it was done, and they would, on the strength of their record and their tally, demand the full amount of their compensation for the extra labor; and were any ship to approach the islands at any hour these people would know it at once, and would be aware of any shipment of skins that

might be attempted. It would then be the common talk among the 398 inhabitants of the two islands, and it would be a matter of record, open to any person who might come upon the ground charged with investigation.

Furthermore, these natives are constantly going to and from Oonalashka, visiting their relations in the Aleutian settlements, hunting for wives, &c. On the mainland they have intimate intercourse with bitter enemies of the company, with whom they would not hesitate to talk over the whole state of affairs on the islands, as they always do; for they know nothing else and think of nothing else and dream of nothing else. Therefore, should anything be done contrary to the law, the act could and would be reported by these people. The Government, on its part, through its four agents stationed on these islands, counts these skins into the ship, and one of their number goes down to San Francisco upon her. There the collector of the port details experts of his own who again count them all out of the hold, and upon that record the tax is paid and the certificate signed by the Government.

It will, therefore, at once be seen, by examining the state of affairs on the islands, and the conditions upon which the lease is granted, that the most scrupulous care in fulfilling the terms of the contract is compassed, and that this strict fulfillment is the most profitable course for the lessees to pursue; and that it would be downright folly in them to deviate from the letter of the law, and thus lay themselves open at any day to discovery, the loss of their contract, and forfeiture of their bonds. Their action can be investigated at any time, any moment, by Congress; of which they are fully aware. They cannot bribe these 398 people on the islands to secrecy, any more successfully than they could conceal their action from them on the sealing fields; and any man of average ability could go, and can go, among these natives and inform himself as to the most minute details of the catch, from the time the lease was granted up to the present hour, should he have reason to suspect the honesty of the Treasury agents. The road to and from the island is not a difficult one, though it is traveled only once a year.

The subject of the method and direction of the business of sealing on these islands, involving as it does a discussion of the law and the action of the Alaska Commercial Company and the natives combined, is given below.

BY-LAWS OF THE ALASKA COMMERCIAL COMPANY, SAN FRANCISCO, CAL.

I. The corporate name of this company is the Alaska Commercial Company, and its affairs are under the control of five trustees, who shall hereafter be chosen by the stockholders of the company on the second Wednesday of June in each year, and who shall hold office until their successors are elected. The annual meetings of the stockholders shall be held at the office of the company. At all elections of trustees by the stockholders, each stockholder shall be entitled to one vote for every share of stock held by him on the books of the company. Stockholders may vote by proxy. All proxies shall be signed by the party owning the stock represented.

II. The principal place of business of the company is San Francisco, Cal.

III. The regular meetings of the board of trustees will be held at the office of the company on the first Wednesday in each month, at 12 o'clock m., and no notice of such meeting to any of the trustees shall be requisite. Other meetings of the board of trustees may be held upon the call of the president, by notice, signed by him, of the time and place of meeting, personally served on each trustee residing within this State, or published in a newspaper of general circulation in San Francisco for ten days successively next preceding the day of such meeting. Special meetings may be held upon notice, signed by three trustees, stating the time and place of meeting, and the purpose for which the meeting is called, having been duly served on each trustee, or published in a news-

paper of general circulation in San Francisco for ten days successively next preceding the day of meeting, and no business other than that specified in the notice shall be transacted at such special meeting. At all meetings of the board any three of the trustees being present shall constitute a quorum for the transaction of the business of the company. Adjourned meetings may be held in pursuance of a resolution of the board adopted at any regular or general meeting of the board. Any three trustees elected at any annual meeting of the stockholders of the company, and being present at the close of such stockholders' meeting may, on the same day, without notice to any of the trustees, meet and organize the board by the election of officers, and may transact such other business as may come before the board at such meeting.

IV. The officers of the company shall consist of a president, a vice-president, and a secretary, who shall be chosen by the board of trustees at their first meeting after the annual election of trustees; such officers to hold office one year, or until their successors are elected.

V. The president, or in his absence the vice-president, shall preside at the meetings of the board. In case neither is present, the board may appoint a president *pro tempore*.

VI. All vacancies in the board may be filled by the board at the next meeting after the existence of such vacancy, and it shall require the affirmative vote of three trustees to elect. In case of any vacancy occurring among the officers or agents of the company, the same may be filled at any meeting of the board.

VII. All certificates of the capital stock of the company shall be signed by the president and secretary, attested by the corporate seal of the company, and can be issued to the parties entitled thereto or their authorized agent. All transfers of stock shall be made on the books of the company by the secretary, upon surrender of the original certificate or certificates, properly indorsed by the party in whose favor the same was issued. No stock shall be transferred to any person not a stockholder of the company at the time of such transfer, unless the same shall have been offered for sale to the company, or stockholders of the company, and the purchase at the fair cash or market value refused, except by authority of a resolution of the board of trustees permitting such transfer.

VIII. The corporate seal of the company consists of a die of the following words: "Alaska Commercial Company, San Francisco, California."

IX. The corporate seal, and all property, securities, interests, and business of the company, shall be under the control and general management of the president, subject to the direction of the board of trustees. The funds of the company shall be deposited (from time to time as they are received) to the credit of the company, with a bank doing business in San Francisco, to be designated by the president, and the said funds can be drawn from such bank only by proper checks or drafts, signed by the president or vice-president of the company. The books of the company shall be kept by the secretary, who shall also keep a correct record of all the proceedings of the board of trustees had at their meetings, and perform such other duties as the board of trustees may require.

X. The pay and salaries of all officers of the company shall be determined, from time to time, by the board of trustees.

XI. The president of the company shall have power to appoint and employ such general business agents, factors, attorneys, clerks, and other employés as he may deem proper and requisite for conducting the business and affairs of the company; and he shall fix the pay, commissions, or salaries of all such agents, factors, attorneys, clerks, and other employés, from time to time, as circumstances shall require.

XII. All transfers of the capital stock of this company, made to persons not citizens of the United States, or made for the use or benefit of any citizen or citizens of any foreign Government, are absolutely void.

XIII. Dividends from the net profits of the company may be declared and paid by order of the board of trustees, in accordance with law.

XIV. These by-laws may be altered or amended by the board of trustees in the manner prescribed by law.

REGULATIONS FOR CONDUCT OF AFFAIRS ON THE SEAL ISLANDS.

OFFICE ALASKA COMMERCIAL COMPANY,
San Francisco, January, 1872.

The following regulations are prescribed for the guidance of all concerned:

1. The general management of the company's affairs on the islands of Saint Paul and Saint George is intrusted to one general agent, whose lawful orders and directions must be implicitly obeyed by all subordinate agents and employés.

*2. Seals can only be taken on the islands during the months of June, July, September, and October in each year, except those killed by the native inhabitants, for food and clothing, under regulations prescribed by the Secretary of the Treasury. Female seals and seals less than one year old will not be killed at any time, and the killing of seals in the waters surrounding the islands, or on or about the rookeries, beaches, cliffs, or rocks, where they haul up from the sea to remain, or by the use of fire-arms, or any other means tending to drive the seals away from the islands, is expressly forbidden.

3. The use of fire-arms on the islands, during the period from the first arrival of seals in the spring season until they disappear from the islands in autumn, is prohibited.

4. No dogs will be permitted on the islands.

5. No person will be permitted to kill seals for their skins on the islands, except under the supervision and authority of the agents of the company.

6. No vessels other than those employed by the company, or vessels of the United States, will be permitted to touch at the islands, or to land any persons or merchandise thereon, except in cases of shipwreck or vessels in distress.

*7. The number of seals which may be annually killed for their skins on Saint Paul Island is limited to seventy-five thousand, and the number which may be so killed on Saint George Island is limited to twenty-five thousand.

8. No persons other than American citizens, or the Aleutian inhabitants of said islands, will be employed by the company on the islands in any capacity.

9. The Aleutian people living on the islands will be employed by the company in taking seals for their skins, and they will be paid for the labor of taking each skin and delivering the same at the salt-house 40 cents, coin, until otherwise ordered by the Secretary of the Treasury. For other labor performed for the company, proper and remunerative wages will be paid, the amount to be agreed upon between the agents of the company and the persons employed. The working parties will be under the immediate control of their own chiefs, and no compulsory means will ever be used to induce the people to labor. All shall be free to labor or not, as they may choose. The agents of the company will make selection of the seals to be killed, and are authorized to use all proper means to prevent the cutting of skins.

*Sections 2 and 7 of the above regulations were based upon the law of July 1, 1870; but since then Congress has given the Secretary of the Treasury the power to fix the ratio for each island upon a more intelligent understanding of the subject, and also to extend the time for taking from the 1st of June up to the 15th of August.

10. All provisions and merchandise required by the inhabitants for legitimate use will be furnished them from the company's stores, at prices not higher than ordinary retail prices at San Francisco, and in no case at prices above 25 per cent. advance on wholesale or invoice prices in San Francisco.

11. The necessary supplies of fuel, oil, and salmon will be furnished the people gratis.

12. All widows and orphan children on the islands will be supported by the company.

13. The landing or manufacture on the islands of spirituous or intoxicating liquors or wines will, under no circumstances, be permitted by the company, and the preparation and use of fermented liquors by the inhabitants must be discouraged in every legitimate manner.

14. Free transportation and subsistence on the company's vessels will be furnished all people who at any time desire to remove from the islands to any place in the Aleutian group of islands.

15. Free schools will be maintained by the company eight months in each year, four hours per day, Sundays and holidays excepted, and agents and teachers will endeavor to secure the attendance of all. The company will furnish the necessary books, stationery, and other appliances for the use of the schools, without cost to the people.

16. The physicians of the company are required to faithfully attend upon the sick, and both medical attendance and medicines shall be free to all persons on the islands; and the acceptance of gratuities from the people for such services is forbidden.

17. The dwelling-houses now being erected by the company will be occupied by the Aleutian families free of rent or other charges.

18. No interference on the part of the agents or employés of the company in the local government of the people on the islands, or in their social or domestic relations, or in their religious rites or ceremonies will be countenanced or tolerated.

19. It is strictly enjoined upon all agents and employés of the company to at all times treat the inhabitants of the islands with the utmost kindness, and endeavor to preserve amicable relations with them. Force is never to be used against them, except in defense of life, or to prevent the wanton destruction of valuable property. The agents and employés of the company are expected to instruct the native people in household economy, and, by precept and example, illustrate to them the principles and benefits of a higher civilization.

20. Faithful and strict compliance with all the provisions and obligations contained in the act of Congress entitled "An act to prevent the extermination of fur-bearing animals in Alaska", approved July 1, 1870, and the obligations contained in the lease to the company executed in pursuance of said act, and the regulations of the Secretary of the Treasury, prescribed under authority of said act, is especially enjoined upon all agents and employés of the company. The authority of the special agents of the Treasury appointed to reside upon the islands must be respected whenever lawfully exercised. The interest of the company in the management of the seal-fisheries being identical in character with that of the United States, there can be no conflict between the agents of the company and the agents of the Government, if all concerned faithfully perform their several duties and comply with the laws and regulations.

21. The general agent of the company will cause to be kept books of record on each island, in which shall be recorded the names and ages of all the inhabitants of the islands, and, from time to time, all births, marriages, and deaths which may occur on the islands, stating, in cases of death, the causes of the same. A full transcript of these records will be annually forwarded to the home office at San Francisco.

22. Copies of these regulations will be kept constantly posted in conspicuous places on both islands, and any willful violation of the same by the agents or employés of the company will be followed by the summary removal of the offending party.

JOHN F. MILLER,
President Alaska Commercial Company.

General Miller, in January, 1881, was elected, by the legislature of California, to the Senate of the United States. He is succeeded as president of the Alaska Commercial Company by Mr. Lewis Gerstle, who is one of the original stockholders and who has always been prominently identified with the business. The affairs of the company are now principally managed by Messrs. Gerstle, Sloss, Niebaum, and Neumann, on the Pacific coast; by Mr. Hutchinson, at Washington; and Sir Curtis Lampson in London.—H. W. E.

13. THE LAW PROTECTING THE SEAL-ISLANDS.

AN ACT to prevent the extermination of fur-bearing animals in Alaska.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it shall be unlawful to kill any fur-seal upon the islands of Saint Paul and Saint George, or in the waters adjacent thereto, except during the months of June, July, September, and October, in each year; and it shall be unlawful to kill such seals at any time by the use of fire-arms, or use of other means tending to drive the seals away from said islands: *Provided*, That the natives of said islands shall have the privilege of killing such young seals as may be necessary for their own food and clothing during other months, and also such old seals as may be required for their own clothing and for the manufacture of boots for their own use, which killing shall be limited and controlled by such regulations as shall be prescribed by the Secretary of the Treasury.

SEC. 2. *And be it further enacted*, That it shall be unlawful to kill any female seal, or any seal less than one year old, at any season of the year, except as above provided; and it shall also be unlawful to kill any seal in the waters adjacent to said islands, or on the beaches, cliffs, or rocks where they haul up from the sea to remain; and any person who shall violate either of the provisions of this or the first section of this act, shall be punished on conviction thereof, for each offense, by a fine of not less than $200 nor more than $1,000, or by imprisonment not exceeding six months, or by both such fine and imprisonment, at the discretion of the court having jurisdiction and taking cognizance of the offenses; and all vessels, their tackle, apparel, and furniture, whose crew shall be found engaged in the violation of any of the provisions of this act, shall be forfeited to the United States.

SEC. 3. *And be it further enacted*, That for the period of twenty years from and after the passage of this act, the number of fur-seals which may be killed for their skins upon the island of Saint Paul is hereby limited and restricted to seventy-five thousand per annum; and the number of fur-seals which may be killed for their skins upon the island of Saint George is hereby limited and restricted to twenty-five thousand per annum: *Provided*, That the Secretary of the Treasury may restrict and limit the right of killing, if it shall become necessary for the preservation of such seals, with such proportionate reduction of the rents reserved to the Government as shall be right and proper; and if any person shall knowingly violate either of the provisions of this section, he shall, upon due conviction thereof, be punished in the same way as is provided herein for a violation of the provisions of the first and second sections of this act.

SEC. 4. *And be it further enacted*, That immediately after the passage of this act, the Secretary of the Treasury shall lease, for the rental mentioned in section 6 of this act, to proper and responsible parties, to the best advantage of the United States, having due regard to the interests of the Government, the native inhabitants, the parties heretofore engaged in the trade, and the protection of the seal-fisheries, for a term of twenty years from the 1st day of May, 1870, the right to engage in the business of taking fur-seals on the islands of Saint Paul and Saint George, and to send a vessel or vessels to said islands for the skins of such seals, giving to the lessee or lessees of said islands a lease duly executed, in duplicate, not transferable, and taking from the lessee or lessees of said islands a bond, with sufficient sureties, in a sum not less than $500,000, conditioned for the faithful observance of all the laws and requirements of Congress, and of the regulations of the Secretary of the Treasury touching the subject-matter of taking fur-seals and disposing of the same, and for the payment of all taxes and dues accruing to the United States connected therewith. And in making said lease the Secretary of the Treasury shall have due regard to the preservation of the seal-fur trade of said islands, and the comfort, maintenance, and education of the natives thereof. The said lessees shall furnish to the several masters of vessels employed by them certified copies of the lease held by them, respectively, which shall be presented to the Government revenue officer for the time being who may be in charge at the said islands, as the authority of the party for landing and taking skins.

SEC. 5. *And be it further enacted*, That at the expiration of said term of twenty years, or on surrender or forfeiture of any lease, other leases may be made in manner as aforesaid for other terms of twenty years; but no persons other than American citizens shall be permitted by lease, or otherwise, to occupy said islands, or either of them, for the purpose of taking the skins of fur-seals therefrom, nor shall any foreign vessel be engaged in taking such skins; and the Secretary of the Treasury shall vacate and declare any lease forfeited, if the same be held or operated for the use, benefit, or advantage, directly or indirectly, of any person or persons other than American citizens. Every lease shall contain a covenant on the part of the lessee that he will not keep, sell, furnish, give, or dispose of any distilled spirits or spirituous liquors on either of said islands to any of the natives thereof, such person not being a physician and furnishing the same for use as medicine; and any person who shall kill any fur-seal on either of said islands, or in the waters adjacent thereto (excepting natives as provided by this act), without authority of the lessees thereof, and any person who shall molest, disturb, or interfere with said lessees, or either of them, or their agents or employés, in the lawful prosecution of their business, under the provisions of this act, shall be deemed guilty of misdemeanor, and shall for each offense on conviction thereof, be punished in the same way and by like penalties as prescribed in the second section of this act; and all vessels, their tackle, apparel, appurtenances, and cargo, whose crews shall be found engaged in any violation of either of the provisions of this section, shall be forfeited to the United States; and if any person or company, under any lease, herein authorized, shall knowingly kill, or permit to be killed, any number of seals exceeding the number for each island in this act prescribed, such person or company shall, in addition to the penalties and forfeitures aforesaid, also forfeit the whole number of the skins of seals killed in that year, or, in case the same have been disposed of, then said person or company shall forfeit the value of the same. And it shall be the duty of any revenue officer, officially acting as such on either of said islands, to seize and destroy any distilled spirits or spirituous liquors found thereon: *Provided*, That such officer shall make detailed report of his doings to the collector of the port.

SEC. 6. *And be it further enacted*, That the annual rental to be reserved by said lease shall be not less than $50,000 dollars per annum, to be secured by deposit of United States bonds to that

amount, and in addition thereto a revenue tax or duty of $2 is hereby laid upon each fur-seal skin taken and shipped from said islands during the continuance of such lease, to be paid into the Treasury of the United States; and the Secretary of the Treasury is hereby empowered and authorized to make all needful rules and regulations for the collection and payment of the same; for the comfort, maintenance, education, and protection of the natives of said islands, and also for carrying into full effect all the provisions of this act: *Provided further*, That the Secretary of the Treasury may terminate any lease given to any person, company, or corporation, on full and satisfactory proof of the violation of any of the provisions of this act, or rules and regulations established by him: *Provided further*, That the Secretary of the Treasury is hereby authorized to deliver to the owners of the fur-seal skins now stored on the islands, on the payment of $1 for each of said skins taken and shipped away by said owners.

SEC. 7. *And be it further enacted*, That the provisions of the seventh and eighth sections of an act entitled "An act to extend the laws of the United States relating to customs, commerce, and navigation over the territory ceded to the United States by Russia, to establish a collection district therein, and for other purposes," approved July 27, 1868, shall be deemed to apply to this act; and all prosecution for offenses committed against the provisions of this act, and all other proceedings had because of the violations of the provisions of this act, and which are authorized by said act above mentioned, shall be in accordance with the provisions thereof, and all acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SEC. 8. *And be it further enacted*, That the Congress may at any time hereafter alter, amend, or repeal this act.

Approved, July 1, 1870.

AMENDED MARCH 24, 1874.—*Be it enacted, &c.*, That the act entitled "An act to prevent the extermination of fur-bearing animals in Alaska," approved July 1, 1870, is hereby amended so as to authorize the Secretary of the Treasury, and he is hereby authorized, to designate the months in which the fur-seals may be taken for their skins on the islands of Saint Paul and Saint George, in Alaska, and in the waters adjacent thereto, and the number to be taken on or about each island respectively.

14. COMMENTS UPON THE LEGISLATION OF CONGRESS.

RATIO OF CATCH AT FIRST INCORRECTLY APPORTIONED.—The original text of the existing law for the protection of the seal-islands provides that the 100,000 seals which may be annually taken from them shall be proportioned by killing 75,000 on Saint Paul and 25,000 on Saint George. This ratio was based evidently upon the foregoing table of Venianimov, which, if accurate, would clearly show that full one-third as many seals repaired to the smaller island as to the larger one, and until I made my surveys, 1872–1874, it was so considered by all parties interested. The fact, however, which I soon discovered, is that Saint George receives only one-eighteeth of the whole aggregate of fur-seal visitation peculiar to the Pribylov Islands, Saint Paul entertaining the other seventeen parts.

REASON FOR AMENDMENT OF 1874.—This amazing difference, in the light of prior knowledge and understanding, caused me, on returning to Washington in October, 1873, to lay the matter before the Treasury Department, and ask that the law be so modified that, in the event of abnormally warm killing seasons, a smaller number might be taken from Saint George with a corresponding increase at Saint Paul; for, unless this was done, it might become at any season a matter of great hardship to secure 25,000 killable seals on Saint George in the short period allotted by the

law of July 1, 1870. The Treasury Department, while fully concurring in my representations, seemed to doubt its power to do so; then, with its sanction, I carried the question before Congress, January, 1874, and secured from that body an amendment of the act of July 1, 1870, above quoted in full (act, &c., approved March 24, 1874), which gives the Secretary of the Treasury full discretion in the matter, and fixes the hitherto inflexible ratio of killing on each island upon a sliding scale, as it were, for adjustment from season to season, upon a more intelligent understanding of the subject; and, also, this amendatory act grants an extension of the legal limit of killing, by giving the Secretary of the Treasury the power to fix it annually.

LAW WORKS WELL.—As the law is now amended, the killing on the two islands can be sensibly adjusted each season, by the relative number of seals on the two islands, which will vary so markedly on Saint George according as it may be abnormally dry and warm when the period for driving the "holluschickie" is at hand.

SPECIAL AGENTS OF THE TREASURY DEPARTMENT.—Prior to March, 1872, the supervision of the Treasury Department over its interest, on the Pribylov Islands was directed by the detail of special agents by the Secretary, who paid them out of a contingent fund of $50,000, which Congress voted in 1868 for the "collection of customs" in Alaska; this appropriation running out, the secretary drew the following bill, which Congress adopted, and it was approved March 5, 1872:

SECTION I. *Be it enacted, &c.*, That the Secretary of the Treasury be, and he is hereby, authorized to appoint one agent and three assistant agents, who shall be charged with the management of the seal fisheries in Alaska, and the performance of such other duties as may be assigned to them by the Secretary of the Treasury; and the said agent shall receive the sum of $10 per diem; one assistant agent the sum of $8 per diem; and two assistant agents the sum of $6 each per diem while so employed; and they shall also be allowed their necessary traveling expenses in going to and returning from Alaska, such expenses not to exceed the sum of $300 in any one year.

SEC. II. *And be it further enacted*, That the Secretary of the Treasury be, and is hereby, authorized to erect a dwelling-house upon each of the islands of Saint Paul and Saint George for the use of said agents, the cost of both not exceed the sum of $6,000.

SEC. III. *And be it further enacted*, That the said agents be, and they are hereby, empowered to administer oaths in all cases relating to the service of the United States, and to take testimony in Alaska for the use of the Government in any manner concerning the public revenues.

Under this law the present force of Treasury officers is creditably maintained on the Pribylov Islands. Living there, as they do, in perfect isolation, so far from headquarters, it is necessary that, to insure the personal ability of the officers to be out on the killing grounds in the sealing season, two agents at least should be detailed upon each island, as they are; should one fall sick, then the other is on hand. The work every year of taking the seals, like the moving of the tides, cannot and will not wait for any man; it is literally "now or never!" with its conduct.

2.—THE FUR-SEAL INDUSTRY OF CAPE FLATTERY AND VICINITY.*

JAMES. G. SWAN.

1. HISTORY, PRESENT CONDITION, AND METHODS OF THE INDUSTRY.

The northern fur-seals (*Callorhinus ursinus* Gray) in their annual migration north, approach the coast between Point Grenville, Washington Territory, and the western shores of Vancouver

* According to Prof. D. S. Jordan, a few California vessels are employed in the capture of fur-seal. At San Diego he states the chase of the fur-seal is more important than the fisheries proper. They are sought for chiefly in the Guadalupe Islands. Most of them are killed by shooting, but sometimes they are dispatched with clubs. Their skins are sold in San Francisco at $4 to $6 each. The carcass is thrown away. About $10,000 worth of the skins of fur-seal from this region were sold in San Francisco in 1879.

Island, British Columbia, in vast herds, and are taken by the Indians of Cape Flattery and the natives of Vancouver Island, on the ocean off the coast, and occasionally in the Strait of Fuca as far inland as the Dungeness Light.

The great body of these seals keep well out to sea, and during the present year (1880) have been reported by vessels bound in from China and the Sandwich Islands as having been seen from 100 to 300 miles off shore, covering the sea as far as the eye could reach, and looking like vast beds of kelp in the distance.

Meteorological causes seem to effect this vast collection, sometimes causing it to keep off from the shore at a great distance, with only a few scattering ones coming near enough to fall victims to the Indian's spear. At other times, and notably the present season, the great herd sways inward toward the land, following the same general movement as may be observed in a school of herring, the center of the school or herd being invariably the most numerous.

During the voyage of Captain Meares, in 1788–'89, as well as those of Portlock, Dixon, Manhand, and other early voyagers, but little mention is made of seals, as they were then of such small value that in the list of furs and skins which the captains were directed to procure no mention is made of them, the sea-otter then being the most plentiful, as it was and is at this time the most costly and beautiful of all the furs.

Black fox-skins were very valuable, as also sable, black beaver, and black martin; but river otter and seals were classed with inferior furs, which the captains were directed to purchase or not as they judged best, but to confine their work to the sea-otter.

From all the accounts given in the records of those early voyages, as well as from the traditions of the Indians, it seems that a hundred years ago the sea-otter were as numerous in this vicinity and as readily taken by the Indians as the fur-seal is at the present time. Sea-otters are but rarely taken now, and seem to have abandoned their ancient haunts on the American coast and to have migrated in a body to the northeastern shores of Asia and the islands off the Siberian coast and Japan, where they abound. Their places on the American shores are now taken by the fur-seal, which of late years seem to be steadily on the increase.

From 1857, the date of the first white settlement at Neah Bay, to 1866, but few seals were taken, they were in those years very scarce, and it is only since 1866 that they have been known to resort to the vicinity of Fuca Strait in such large numbers.

The majority of the seals killed by the Makahs, or Cape Flattery Indians, at the commencement of the season are females and yearling pups; the older males appear to keep well out to sea and are seldom taken near the shore until toward the close of the season.

The female seals killed by the Indians invariably have fœtuses in them in various stages of development, according to the month when taken.*

I procured of an Indian two fœtal seal pups on the 20th of May last, which I selected from a lot the Indian was skinning; they were far enough advanced to be skinned, although their pelts were worthless for trade. These two specimens I gave to Professor Jordan, who has them among the collection he made at Neah Bay.

The time the fur-seals make their appearance in the vicinity of Cape Flattery varies; generally they do not appear before the 1st of March, but this season the first were taken on the 18th day

* Mr. Swan thinks it possible that the seals bring forth their young in the ocean, and says that many of the sealers agree with that opinion. Mr. H. W. Elliott, however, feels certain that it would be impossible for the new-born seals to live in the ocean, and thinks that no seals at Cape Flattery are so far advanced in pregnancy as to be unable to reach the Pribylov Islands before the pups are born.—A. HOWARD CLARK.

of January in Fuca Strait near Waadda Island at the entrance to Neah Bay. The Indians killed on that day forty-five. This is as early as I have any recollection of, although the old Indians tell me they have known them to make their appearance, but rarely, as early as the last of December. I think their appearance for an average period of ten years past would be about the 1st of March. They remain some seasons as late as July and August, but in 1880 the last catch was made about the 20th of June.

Until within a few years past the Indians have gone to sea boldly in their canoes, starting out by daybreak and returning at night. Three men usually go in a canoe at such times. Latterly they have put their canoes on board the sealing schooners which take them to the sealing grounds and lay by while the Indians went off in them and speared the seals. The canoes taken on board the schooner have but two Indians in each.

The outfit of each canoe consists of one and sometimes two spears, which are fitted in the following manner: A pole, 15 or 16 feet long, with a broad place at one end over which the fingers are clasped, and fitted with two prongs at the other end, which are inserted into the sockets of two barbed spear-heads, each attached to a stout line, either made fast to the pole near the middle or held in the hand of spearsman. A club is also provided for knocking the seal on the head after he is speared, and two buoys made of the skin of the hair-seal (*Phoca Pealii* Gill) taken off whole and blown up with the hair side in. These buoys are used either to bend on to the spear line if the animal is not easily killed, or in case of rough weather they are attached to each side of the canoe a little forward of the center, and render her steady and seaworthy.

After a strong wind and the accompanying heavy sea have subsided, the seals lie on their backs in the water and sleep. Then the Indians cautiously and quietly approach them, and selecting a victim, silently paddle near enough to thrust the spear deeply into its body, and at once withdrawing the pole, leave the barbs embedded in its flesh, sometimes killing it outright, but often only wounding it; the barbed spear-head, however, holds fast, the line is quickly hauled in, and the seal knocked on the head with the club. They smash in every seal's skull, whether it has been killed by the spear or not, and so universal is this practice that although I have repeatedly offered to pay Indians liberally for a perfect skull, I have been unable to procure a single specimen.

The Indians here never use fire-arms to kill seals. They say the report would scare them away, and they strongly object to white men using rifles on the sealing grounds.

After the day's hunting is over, the canoes which have put off from the shore return with the seals they have taken, which are then skinned by the women, either on the beach or in the lodges. The canoes belonging to the schooners take their catch on board the vessels, which at first brought them all on shore to be skinned, but this season they have been mostly skinned and salted on the schooner.

Each vessel takes as many canoes as she can carry, the number varying, according to the size of the vessel, from eight to fifteen being the average, although the largest vessels can take twenty, but very seldom exceed fifteen. The Indians pay one-third of their catch for having themselves and their canoes transported to the sealing grounds and back to Neah Bay.

These schooners have cabin accommodations for the officers and crews, and the Indians are assigned quarters in the hold among the salted skins, reeking carcasses and blubber of the seals, for the Indians wish to save the blubber to make oil and the carcasses to use for food until they are too plentiful, when they are thrown overboard, or, if skinned on shore, left on the beach for the tide to remove.

The largest of the schooners have forecastle accommodations for some of the Indians, but the most of them sleep in the hold, where the peculiar odor of the seal-skins and blubber seems to impart a healthy and invigorating influence on these savages, who appear to thrive and grow fat during the season.

The blubber taken from the seals is tried out by the women in the lodges. They cut it into small pieces, which they boil in iron pots and brass kettles. The oil, when cold, is put into various receptacles, generally into large pouches or bottles made from the paunches of seals, sea lions, or the killer (*Orca ater* Cope), which abounds in Fuca Strait. These paunches are first cleaned, then blown up full of wind, and rolled, and rubbed, and stretched, and again and again blown up till they attain their utmost tension, when they are left to dry, in which condition they retain their shape, and are serviceable in holding oil.

The cleanest and nicest oil is placed in these paunches, and is used with their food as white people use sweet oil or butter, and when fresh made is no more disagreeable than lard. Oil that gets scorched or dirty, or any surplus oil, is sold to the whites.

The quantity of seal oil produced this season can only be ascertained by estimate. I think, taking the yearlings, which yield scarcely any, and the very large ones, which yield 1½ gallons each, that the average may be set down at 1 quart to each seal, which numbered, as may be seen in the statistical tables, 6,268. These would make over 1,500 gallons, most of which is used for food.

Before the fur-seals became so plenty and the pursuit of them so profitable the Cape Flattery Indians killed many whales, using their oil for food; but the sealing business now absorbs all their energies, and, although whales are as plenty about the cape as in former years, the Indians have not killed any for some time. They do not appear to have the views of white men about engaging in different occupations at the same time, but when the season for any kind of work comes round they will devote themselves exclusively to that, leaving other things to come in their course.

In former years, before the demand for seal-skins became so great, they devoted themselves to capturing whales. Then the halibut season commenced, and after that the salmon. Now, instead of whales, it is seals, and at present (July), the sealing season being over, the whole tribe are busy with the halibut fishery, which in turn will be succeeded by the salmon.

There have been six schooners employed during the past season in the seal fishery, from Neah Bay, viz: Schooner Endora, 73.36 tons, of San Francisco, Nelson T. Oliver, master; schooner Champion, 42.84 tons, of Port Townsend, E. H. McAlmond, master; schooner Teazer, 39 tons, of Port Townsend, James Dalgardno, master; schooner Lottie, 31 tons, of Port Townsend, John Oberg, master; schooner Letitia, 30.66 tons, of Port Townsend, John Cornish, master; schooner Mist, 16.99 tons, of Port Townsend, Albert Waite, master.

Sealing schooner Three Sisters, 65 tons, S. L. Beckwith, master, arrived from San Francisco on the 14th of April, but proceeded north without attempting to take any seals off the cape.

On the Vancouver Island side of the strait, and on the west coast of that island, an equal number of English vessels belonging to Victoria, British Columbia, have been engaged during the season in sealing, viz: Schooners Favourite, Onward, Thornton, Anna Beck, Wanderer, and Winnifred, having about the same aggregate tonnage as the American schooners.

In the report of Alexander C. Anderson, esq., inspector of fisheries for British Columbia, made to the minister of marine and fisheries, Ottawa, Canada, for 1879, the number of fur-seal skins taken on the coast of British Columbia during that season was 12,500, which averaged $8 each, making a total value of $100,000. The price of fur-seal skins having advanced, is estimated

The number of fur-seal skins taken by the Indians belonging to the Makah Indian Reservation, Cape Flattery, were reported to me as follows:

Total catch reported by the schooners		4,710
Total number purchased by the traders, independent of vessels		1,558
Total catch of 1880 reported at Neah Bay		6,268
The catch of British Columbia was probably larger than that of last year, but I will assume the number reported by Mr. Anderson as the basis of this year's estimate, say	12,500	
To this should be added the catch of English schooner Favourite, wrecked off Barclay Sound, British Columbia, and skins totally lost, reported amount	382	
Total number of skins taken on west coast of British Columbia		12,882
Total number taken this season		19,150
Total value at $9 each		$172,350

I am of the opinion that this amount is under the true estimate, as the catch on the American side of the strait, being greatly in excess of last year, it is but reasonable to infer that a corresponding increase has been made on the English side, and if the exact number could be ascertained at this time, I do not hesitate to give it as my opinion that twenty thousand seals have been killed during the season of 1880, ending with the 30th day of June.

Of the catch on the American side, that portion taken by Indians who went on the schooners, 4,710 skins, one-third were given by the Indians to the vessels to pay for transporting them and their canoes to the sealing-ground, amounting to 1,570 skins. The remainder, 3,140, added to the amount sold by the Indians to traders independent of the schooners, 1,558 skins, makes a total of 4,698 skins, for which they received from the traders, in cash and trade, an average of $9 per skin, equal to $42,282. This sum, divided among two hundred and thirty-two Indians, the whole number who were engaged in sealing during the season, gives a little over $182 to each Indian for his six months' work.

The total value of the fur-seal catch of 6,268 skins, reported at Neah Bay as taken by the Indians of the Makah Reservation, at $9 each, is $56,412.

This shows the value and importance of one of the interests of Washington Territory of which hitherto but little has been known, it being evidently for the pecuniary advantage of the very few persons who have engaged in it to keep the public in the dark as much as possible regarding its extent and value. This season, however, has shown an increase of the vessels employed, and it is more than probable that the number will be increased another season. The unprecedented number of seals which made their appearance, a number which seems to have steadily increased each season since 1866, will give employment to a larger fleet of vessels another year. One of the captains remarked to me, "If a hundred schooners could have obtained crews of Indians, there were more than enough seals to have satisfied them all."

This is a business which cannot be monopolized by one individual or one company any more than the codfish or whaling business can be monopolized. It is a fishery or pursuit upon the open ocean and on the high seas, free and open to all; but whether the assembling of a large fleet of vessels at Neah Bay, which is the only harbor of refuge to which they can repair, would be attended with any peculiar benefit to the Indians of a Government reservation, whose policy has always been to prohibit free intercourse of the whites and Indians in Indian country, and to prevent, under heavy penalties, the assembling of white persons on or near Indian reservations, either for purposes of settlement or trade, or whether such a collection of vessels with the confusion and irregularities incident to every fishing village would not be looked upon by the Government as a

positive injury to the welfare of the Indians, making it desirable to remove them altogether from Neah Bay to some other place on the coast south of Cape Flattery, are grave problems which the Government will, at no distant day, be called upon to solve.

The proximity of Neah Bay to the waters covered each season with innumerable swarms of fur-seals, its nearness to the banks where annually thousands of tons of halibut are taken by the Indians of Cape Flattery and the west coast of Vancouver's Island, the fact that it is 700 miles nearer the codfish banks of the North Pacific than San Francisco, and that it is the only safe harbor of refuge at the entrance to Fuca Strait, are commercial questions of great and increasing value. The near advent of commercial activity on Puget Sound will call the attention of capitalists to their importance, and show to the commercial world the necessity of utilizing the many advantages Neah Bay possesses, and eventuate in building up a thriving village of whites instead of the unsightly Indian wigwams of the present.

It is a well-ascertained fact that the seals come from the south, approaching the coast in the vicinity of Point Grenville and Destruction Island, then in the vicinity of Quilleute and Flattery Rocks, and later in the season along the west coast of Vancouver Island.

At the commencement of the sealing season all the sealing vessels, both American and English, cruise between Cape Flattery and Point Grenville, and as the great herd slowly moves northward the English vessels keep within their own waters, and are followed by our own vessels, which find the harbors of Barclay Sound and Clyoquot convenient places to run for shelter, just as the English schooners at the commencement of the season will visit Neah Bay as a harbor of refuge.

The general belief is that these seals go directly north after leaving the vicinity of Cape Flattery, and some of the English schooners follow them to the region about Queen Charlotte Islands and the southern coast of Alaska. This is undoubtedly true of a large portion of the herd or herds, for they do not appear to be in one body, but rather like the salmon in separate schools, although their time of appearance is the same. But the observations of some of the sealing captains this season lead them to the conclusion that the fur-seal seen off Cape Flattery do not go to Bering Sea at all, but "haul out," as it is termed, on some undiscovered island in the North Pacific or go direct to the Japanese or Siberian coasts.

Capt. E. H. McAlmond, of schooner Champion, and Capt. N. T. Oliver, of schooner Eudora, two of the largest vessels in the fleet, which proceeded farther out to sea than either of the others, both told me that the last of the season the seals appeared to be "striking off due west."

In a conversation I had in February last with Capt. William Spring, of schooner Favourite, and Capt. Hugh McKay, of schooner Onward, both vessels belonging to Victoria, British Columbia, which had put in here for a harbor, I found they held the same opinion, that the seals "hauled out on some undiscovered islands in the North Pacific and did not all go into Bering Sea." These two gentlemen, with whom I have been personally acquainted for nearly twenty years, are among the oldest and most experienced men in the seal and sea-otter business.

2. STATISTICS FOR 1880.

The following statements show the condition of the fur-seal fishery of Cape Flattery and vicinity as reported at Neah Bay, Clallam County, Washington Territory, for the season ending June 30, 1880:

(a) The sealing fleet.

Name of vessel.	Tons.	Master.	Where from.	Owner or employer.	White persons employed.	Average number of canoes carried.	Number of Indians in each canoe.	Average number of Indians each trip.	Season commenced.	Season ended.	Skins taken.	Value, averaged at $9 per skin.	How preserved.
Champion	42.84	E. H. McAlmond	Port Townsend	W. Gallick	3	15	2	30	Feb. 6	June 30	1,562	$14,058	Skins salted.
Eudora	73.36	N. T. Oliver	San Francisco	H. Leibes	4	15	2	30	Feb. 24	June 24	1,439	12,951	Do.
Lottie	31.00	John Oberg	Port Townsend	W. Gallick	3	10	2	20	Feb. 6	July 1	655	5,895	Do.
Letitia	30.66	John Cornish	do	Master	3	11	2	22	Mar. 16	June 25	516	4,644	Do.
Teazer	39.00	James Dalgardus	do	L. Baxter	3	12	2	24	Mar. 16	June 29	348	3,132	Do.
Mist	16.77	Albert Waite	do	Master	3	8	2	16	Apr. 3	June 19	190	1,710	Do.
	233.83*				19	71	....	142			4,710	42,390	

(b) The trips made by the sealing vessels.

Schooner Champion.		Schooner Eudora.		Schooner Lottie.		Schooner Letitia.		Schooner Teazer.		Schooner Mist.	
	Seals.		*Seals.*		*Seals.*		*Seals.*		*Seals.*		*Seals.*
Feb. 6	116	Feb. 24	210	Feb. 6	55	Mar. 16	51	Mar. 16	16	Apr. 30	88
Feb. 10	31	Mar. 1	35	Feb. 10	38	Apr. 3	31	Mar. 22	8	Apr. 18	1
Feb. 24	128	Mar. 10	47	Feb. 24	98	Apr. 16	50	Apr. 16	38	Apr. 29	55
Mar. 1	86	Mar. 16	160	Feb. 29	15	Apr. 30	120	May 1	25	May 13	17
Mar. 16	116	Apr. 3	102	Mar. 1	60	May 18	183	May 16	153	May 20	12
Mar. 21	77	Apr. 16	119	Mar. 21	10	May 29	1	May 28	41	June 1	17
Apr. 3	59	Apr. 18	7	Apr. 3	12	June 1	40	June 10	67	6 trips	190
Apr. 16	113	May 1	220	Apr. 16	108	June 16	40	7 trips	348		
Apr. 26	131	May 19	312	Apr. 18	3	8 trips	516				
May 2	170	May 28	70	Apr. 29	51						
May 13	69	June 1	106	May 18	39						
May 19	121	June 5	13	May 20	121						
June 1	298	June 21	38	May 29	32						
June 9	47	13 trips	1,439	June 23	7						
14 trips	1,562			June 30	8						
				15 trips	655						

(c) The number of skins procured by traders from Indians who went in their canoes independent of the schooners.

Name of trading post.	Number of skins.	Number of canoes.	Number of Indians.
Neah Bay Village	747	.....	.....
Hoseil Village	180	*10	30
Quilleute Village	602	*20	60
Skins taken up-sound for sale	29	.....	.....
	1,558	30	90

* Three Indians each.

SUMMARY.

Number of vessels employed			6
Amount of tonnage			233.83
Number of whites on vessels		19	
Number of Indians on vessels	142		
Number of Indians from trading posts	90		
Number of Indians		232	
Total number of persons employed in catch			251
Number of seal-skins received by the schooners			4,710
Number of seal-skins received at trading posts			1,558
Total number of seal-skins taken during the season			6,268
Average value of skins as estimated by the trader at Neah Bay, $9 each, making the value of the season's catch, as estimated			$56,412

Of the amount of skins received by the vessels (4,710) one-third was given by the Indians to the schooners which conveyed them and their canoes to the sealing ground, amounting to 1,570 skins. The remainder, say 3,140 skins, belonging to the Indians, added to the number sold to the traders independent of the catch of the schooners, *i. e.*, 1,558 skins, makes 4,698 which the Indians sold to the traders for cash and trade. At an average of $9 per skin, these netted the handsome amount of $42,282, which, divided among 232 Indians who were engaged in the business, gives a little over $182 each for the season's work.

The success of the vessels engaged the past season will induce many others to embark in the business another season, and already preparations are making to secure vessels of a better class for the next season's work, which will commence late in December or early in January, 1881. The first seals taken this season were killed by Indians on the 18th day of January, 1880; during that month sixty-nine seals were taken. The schooners did not commence until February.

3.—THE ANTARCTIC FUR-SEAL AND SEA-ELEPHANT INDUSTRY.

By A. Howard Clark.

1. ORIGIN AND DEVELOPMENT OF THE ANTARCTIC SEAL FISHERIES.

The extent of the fishery in the last century.—American vessels first crossed the equator in search of whales about the year 1774. A few years later they cruised along the South American coast as far as Patagonia and in the vicinity of the Tristan and Falkland Islands. At both of these islands fur and hair seals and sea-elephants were then very numerous. The whalers occasionally killed some seals and brought home seal oil as part of their cargoes. Soon after the Revolutionary war a Boston lady named Haley was led to bear the expense of fitting out the ship States for a voyage to the Falklands for hair-seal skins and sea-elephant oil. This was the first vessel, so far as known, that ever sailed from an American port especially equipped for engaging in the seal fishery, and originated an industry that for thirty or forty years was of much importance to the New England fishing ports.

From the manuscript diary of Eben Townsend, supercargo of the ship Neptune, that made a very profitable fur-sealing voyage from 1797 to 1799, we gather some valuable information concerning the commencement of this seal fishery. The diary begins by narrating the particulars of the voyage from the date of leaving New York until arriving at the Falkland Islands, where they began the fur-seal hunt. They anchored in States Harbor, which Mr. Townsend says "derived its name from a ship of that name which lay here two years to obtain sea-elephant oil and hair-seal skins. She was a very large ship, towards 1,000 tons, from Boston, fitted from there soon after the Revolutionary war, and the first ship that we know of that took any fur-seal skins. She was owned by Lady Haley, living in Boston. They took about 13,000 fur-seal skins as an experiment, which were sold in New York at about half a dollar each, their value not being known, and were thought by some to be sea-otter skins. They were afterwards taken to Calcutta and sold there as sea-otters. From Calcutta they were taken to Canton by Captain Metcalf, from New York, who started from the United States about the same time that Captain Kendricks sailed from Boston. In Canton these skins were sold at about $5 each. Captain Metcalf carried out the first seal-skins; and he with Kendricks, from Boston, were the first adventurers from the United States to the northwest coast of America after sea-otter skins. Kendricks was killed in receiv-

ing a salute from another vessel, one of the guns being accidentally loaded with shot. This happened at Wahoo, one of the Sandwich Islands. Metcalf was killed on the northwest coast. Both of these men made several successful voyages from Canton to the coast, but the vessel owners were never benefited. They spent it as they went along. Neither was well calculated for such an enterprise. They were top-heavy with success.

"In the year 1790 Elijah Austin, a very enterprising merchant of New Haven, Conn., fitted out two vessels on a sealing voyage to the Falkland Islands, in consequence of the information derived from Lady Haley's ship. These were the first vessels that undertook the fur-seal skin voyages for the China market. One was commanded by Capt. Daniel Green, the other by Capt. Roswell Woodward, both men of uncommon enterprise. They were successful. They obtained part of their skins at South Georgia. Captain Green only proceeded to Canton; Captain Woodward returned to America. On this voyage Captain Green circumnavigated the globe, and was absent three years."*

Besides the New Haven vessels mentioned by Mr. Townsend there were other vessels sent out on fur-sealing voyages in 1790. Among these was one from Nantucket that cruised on the coast of Africa; another was the ship Industry, Captain Patten, of Philadelphia. Captain Patten with part of his crew, remained on one of the Tristan Islands from August, 1790, to April, 1791, for the purpose of collecting fur-seal skins. During this time he obtained fifty-six hundred for the Chinese market.

The fishery rapidly grew, and it was not long before a dozen or more vessels were engaged in carrying fur-seal skins to Canton from Falkland, South Georgia, Mas-á-Fuera, and other islands where seals were very abundant. In 1792 a full cargo of these skins was obtained at the Falkland Islands by the brig Betsey, of 100 tons, commanded by Captain Steele. In 1792 or 1793 the ship Eliza, Capt. W. R. Stewart, secured a cargo of fur-seal skins at Mas-á-Fuera, and is reported by Captain Delano to have been the first vessel to take a cargo of skins to Canton from that island. From that date till about 1806 fur-seals were taken from Mas-á-Fuera by the millions. One of the most successful voyages ever made in this business was that of the ship Neptune, previously mentioned, and the particulars of which are given on a subsequent page. The voyage was to the Falklands, and thence around Cape Horn to Mas-á-Fuera and China, where the skins were exchanged for Chinese products that yielded over $260,000 in the New York market. Another very profitable voyage was that of the brig Betsey, from 1797 to 1799, under Capt. Edmund Fanning, of Stonington. The Betsey's cargo, of one hundred thousand fur-seal skins, obtained principally at Mas-á-Fuera, was exchanged at Canton for goods that yielded a net profit of $52,300 to the owners in New York. Many other very successful voyages were made, and the fur-seal business was generally very prosperous for several years.

THE FISHERIES FROM 1800 TO 1881.—In the report of a congressional committee, communicated to the Congress of the United States March 12, 1804, to whom had been referred a memorial from citizens of New York and Hudson, in the State of New York, praying for alterations in the navigation laws, we find references as follows to the state of the seal fisheries of the country at that date: "The sea-elephant, like the seal, is understood to be amphibious. They are found at many of the uninhabited islands of the great Southern Ocean, in particular at Kerguelen Land, which, at certain seasons, they frequent in great numbers, and, as they make little resistance, are easily taken by the fishermen. Several American vessels are stated to have been engaged in this business, and the oil, being of an excellent quality, furnishes a valuable article of exportation from this country to Europe.

* Manuscript diary of Eben Towsend, lent to the author of this report by Mr. Charles Peterson, of New Haven, Conn.

"The American vessels employed in the [fur] seal voyages usually pass round Cape Horn, and visit the islands of Juan Fernandez and Mas-á-Fuèra, at the last of which the seal are said most to abound. A few seal are also taken at the Falkland Islands, at Tristan d'Acunha, at Saint Paul's, and Amsterdam; but of late years they have been found to have almost entirely abandoned these islands; and even at Mas-á-Fuera and the islands in its vicinity they are no longer to be found in that abundance they were met with when these voyages were first undertaken. For the last ten or twelve years, however, there have been many American vessels engaged in this business. In 1800 and 1801 not less than ten vessels, principally from New York, Connecticut, and Massachusetts, were thus employed. Some of the ships are represented to have been very successful in their voyages, and to have carried sixty thousand, and, in some instances, as far as one hundred thousand, seal-skins to the Canton market. The oil of the seal (though it is said to be equal to whale oil, and it would command a great price if brought to the United States) is not usually saved, as it will not sell at Canton, or, at least, would not afford a profitable sale. The skins, however (but few of which are brought to the United States, unless where a ship fails in her voyage, and is thence induced to return home), are sold at Canton, and the proceeds invested in teas, silks, nankeens, &c., which are brought to the United States, where they pay a higher or lower duty, according as they are imported in bona fide American vessels or those of a different description."*

After the extermination of the fur-seals at Mas-á-Fuera and other islands on the west coast of South America, vessels cruised throughout the southern seas in search of new grounds. Many large cargoes were obtained at South Georgia, at the Aucklands, Crozets, Border's Island, and other places. In 1819 the great rookeries at South Shetlands were discovered, and during the next three years there was an indiscriminate slaughter of the animals there.

From 1825 to 1845 a few vessels made good fur-seal voyages, but the attention of sealers was more especially given to the capture of sea-elephants, and these animals continued to be the chief object of sealing voyages until the year 1871, when the merchants of New London sent a fleet of three schooners to the South Shetlands for fur-seal. These vessels returned in 1872 with about eight thousand skins of the choicest and richest quality. Their success led to the fitting out of another fleet, and the next season eight vessels secured 15,000 skins. In 1874 six vessels arrived home with 10,000 skins. A very successful voyage was made to the Cape Horn region by Captain Athearn in the schooner Florence. He arrived home in 1876, having secured skins valued at over $100,000. From 1870 to 1880 the sealing fleet brought home 92,756 fur-seal skins, nearly all of them from the South Shetlands and the vicinity of Cape Horn and Terra del Fuego.

The sea-elephant hunting was prosperous from 1840 to 1870, but since the latter date it has decreased in importance. The quantity of sea-elephant oil brought home between 1850 and 1860 was 1,976,751 gallons; from 1860 to 1870, 1,536,664 gallons, and from 1870 to 1880, 1,071,472 gallons. In the season of 1880 the fleet engaged in the capture of fur seals and sea-elephants comprised one bark, one brig, and eight schooners, aggregating 1,277 tons. Three of these were owned at Stonington, Conn., six at New London, Conn., and one at New Bedford, Mass. During the season of 1881 the fleet secured 4,170 fur-seal skins and 1,320 barrels of oil, and during 1882, 5,100 skins, but no oil.

* American State Papers, vol. i, p. 574.

2. THE SEALING GROUNDS.

GENERAL DISTRIBUTION OF SEALS IN SOUTHERN OCEANS.

The Southern fur seal (*Arctocephalus australis*), which is hunted for its valuable skin, is found in but few localities in Antarctic waters or south of the equator. The principal grounds now visited by the sealing fleet are the lonely outlying rocks in the vicinity of Cape Horn. At the South Shetlands, a desolate group of islands south of Cape Horn, these animals were very abundant sixty years ago, and during the years from 1871 to 1876, some good cargoes of very superior skins were secured there, but since the latter date the number of fur seals killed at these islands has been very small. The other sealing grounds are at Kerguelen Land and Heard's Island, in the Southern Indian Ocean. But at these islands very few seals are now annually taken. At the mouth of the River Plate in South America is Lobos Island, where a few thousand fur seals annually congregate. This small rookery is protected by the Government of the Argentine Republic, which allows only a limited number of seals to be captured each year.

It is possible that on some undiscovered islands in the far south there may still be a considerable abundance of these animals. The adventurous sealers of New England occasionally go in search of new islands or revisit those where fur seals were once so plenty.

The sea-elephant, or elephant seal (*Macrorhinus leoninus*), yields an oil little inferior to sperm oil. It is found in abundance only in southern oceans, and generally in about the same localities as the fur seal. The place of its greatest abundance is at Heard's Island, in the Southern Indian Ocean, a small desolate pile of rocks and ice about 15 or 20 miles in extent. This place has from year to year been visited by the hardy sealers, who have, however, been poorly paid for their toil, since even here, where once the seal were found by thousands, they can now be taken in but small numbers, and these only on almost inaccessible beaches. At the island of South Georgia, in the Southern Atlantic, two or three vessels during the past ten years have secured fair cargoes of sea-elephant oil. One vessel, the Trinity, made some very successful voyages to South Georgia a few years ago, and then, in the hope of securing greater profit, made a voyage to Heard's Island, and was lost there in 1880, her crew being rescued from their lonely island home by a United States vessel sent to their relief.

At the beginning of the present century the fur seal was in great abundance on nearly all the islands off the west coast of South America, from Cape Horn to the equator, and was taken in great numbers from the islands of Juan Fernandez and Mas-á-Fuera, from St. Felix and St. Ambrose Islands, the Gallipagos and numerous other islands off that coast. It was captured also in 1820 to 1825 at the South Shetlands in great quantities. The islands of the Falkland Group, the South Georgia Islands, the Sandwich Group, and other places south and east of South America, were annually visited by fleets of vessels. Off the west coast of Africa they were taken as late as 1835 to 1840, when they became almost extinct. At Desolation or Kerguelen Land, at the Aucklands, the Antipodes, the Crozet Group, and everywhere on islands in those cold waters, the fur-seal was found and captured; but so eager were the sealers for gain that no regard was paid to the danger of exterminating the animals by an indiscriminate slaughter of young and old seals, so that it was but a comparatively short time before once famous sealing grounds could no longer be visited with profit to the hunter.

Almost the same story might be told in regard to sea-elephants, for wherever they were found they were slaughtered. This animal is still far more abundant than the fur-seal in southern seas, but is nowhere found in such great herds as were once seen on the Falkland and other islands. Thousands of barrels of elephant oil were taken fifty years ago by American and English vessels

and those belonging to other nationalities, especially at Desolation and the Falklands. These animals abounded on all the islands frequented by the fur-seal. They were specially numerous at Desolation or Kerguelen Land until 1850 or 1860. At Heard's Island, south of Desolation, they were found in great numbers when that island was first "worked" in 1854, and that place is still their principal hauling ground. From the Tristan Islands, South Georgia, South Shetlands, and the vicinity of Cape Horn; from the islands of Ichaboe and Mercury, and other places on the southwest coast of Africa; from the Crozet and Prince Edward Islands and numerous other islands in the Southern Atlantic and Southern Indian Oceans, large cargoes of sea-elephant oil were taken in the early history of this industry.

CAPE HORN REGION.

At the southern extremity of South America, south and southeast of the Straits of Magellan, is a large group of islands, known as Terra del Fuego, or "land of fire." The name was wisely given, for the entire group is of volcanic origin, and more desolate islands could hardly be found. The group extends north and south about 200 miles, and east and west some 380 miles. At its eastern extremity are the Straits of Le Maire and the western limit is Staten Island. South of the main cluster of Terra del Fuego are numerous small islands or rocks, and the most southern is known as Horn Island, whose southern extremity is the famous Cape Horn.

The few inhabitants of the larger islands of the Terra del Fuego Group are half-starved miserable beings who live on fish and seal's flesh. Captain Delano says that they eat the seals raw and nearly rotten. There are some good harbors among the islands, where the sealing vessels lie at anchor while the crews are ashore in search of their prey. The islands of Diego Ramirez form a small group some 50 miles southwest of Cape Horn, and extending for about 4 or 5 miles northwest and southeast. There are three principal islands and numerous rocks above water. Nowhere is there any vegetation, nothing but barren rocks upon which the fur-seals love to climb.

The dangers of sealing among the islands about Terra del Fuego are very great, and many vessels have been lost there in the history of the business. Only five or six years ago the schooner Charles Shearer, of Stonington, left a crew of sealers on Diego Ramirez and proceeded farther in search of new rookeries. The vessel never returned, but the crew were rescued by a passing merchant vessel bound to San Francisco. After the departure of their vessel from the island the crew secured several hundred skins that were left there and afterwards brought to Stonington by a vessel sent out after them. The owners of the Shearer supposed that their vessel had gone to South Shetlands, and the United States Government sent a vessel there in hopes of rescuing any men that might be left in those desolate isles, but no traces of vessel or men could be found.

Capt. George F. Athearn writes from West Tisbury, Mass., under date of April 11, 1881, concerning the danger of sealing in the Cape Horn region, as follows:

"The dangers of the sealing business are many. The southwest coast of Terra del Fuego and islands of Cape Horn are exposed to almost endless gales of wind, accompanied with thick rain, snow, or hail. The days of good weather are few. These westerly gales bring in a heavy swell on all this coast and Western Patagonia. This coast is composed of hundreds of islands, growing smaller and more barren as they approach the sea-coast, the whole line of which is fronted by outlying rocks and blind breakers. It is on these outlying rocks that the seal are found. The constantly prevailing swell may and does for months prevent boats from landing, and when it is possible to land it is done with great difficulty and danger. But the greatest danger is in approaching these outlying rocks from the outer belt of islands. In daylight and clear weather there is not much danger,

as with a good lookout at the masthead any rock that would take a vessel up would be seen; but to be caught by a sudden squall, terminating in a gale, and night coming on, while returning from the outer rocks, the navigation is as bad as it can well be. In the winter, in thick, blowing weather, the nights are eighteen hours long. During the forty months that I was constantly working that coast in the schooner Florence, a time extending over three winters and four summers, I of course passed through many bad times and tight places, and how I got clear I can't tell, and I don't think any one else can tell, even those who are in the business, but I got through it without any injury to the vessel or the loss of a man; still, other vessels have not been so fortunate, most all have lost more or less men. The report came a few days ago of two sealing vessels that had lost men this past season. I sailed in the Eliza Jane from New Bedford, October 24, 1861, and after some rather rough experience in the vicinity of Cape Horn, in the months of May and June, having lost an anchor and got out of several bad scrapes, I came up the east coast of Patagonia, and lost her on the 5th of August, 1862, 60 miles up the Gulf, west of Rio Negro, in a heavy gale from the south. We all suffered greatly for want of water before arriving at the river, which passage we made on foot without the loss of a man."

THE SOUTH SHETLAND ISLANDS.

The South Shetlands, or, as sometimes called, New South Shetlands, is an archipelago in the South Atlantic Ocean, about 300 miles south of Cape Horn, included between latitude 60° 32′ to 67° 15′ south, and longitude 44° 53′ to 68° 15′ west. There is no vegetation except a species of moss. The principal islands of the group are Adelaide, Bridgeman, Smith, Saddle, Coronation, Livingston, King George, and Elephant.

Capt. Edmund Fanning, of Stonington, who visited the South Shetlands more than fifty years ago, describes the group as "a chain of rough, rocky, and mountainous islands whose valleys or chasms are partially filled with everlasting ice, and during the greatest part of the year they are covered with snow. The chain consists of upwards of fifty islands, stretching in a southwest and northeast direction. The navigation among the group is dangerous on account of many sunken reefs. The weather is similar to that of South Georgia. There is very little earth or vegetation, except the winter moss, and not a tree or shrub to be found. Deception Island, the most southerly, is a curious phenomenon of nature, and is beyond doubt of volcanic origin. In form it is a mountain ridge, making the interior round the bay in appearance an immense bowl, while in the east side, as it were, is a piece broken out; this forms an opening or passage by which vessels enter the bay. At the northeast inner bay side is the harbor called Yankee Harbor, near to which, along the shore, is a stream of hot or boiling water; this keeps the water of the bay, for a little distance round, quite warm, and is much resorted to by disabled and wounded penguins, who appear fond of and anxious to remain in it. By scraping down a few inches into the sand of the beach, a few yards distant from the boiling fount, the heat is so great as to render it impossible to hold the hand in any length of time, notwithstanding very near by, in the cavity of the mountain, is an iceberg of solid flint ice several hundred feet in height."*

Sealing on the South Shetland Islands began in 1819, when the brig Hersilia, of Stonington, Conn., and an English vessel from Buenos Ayres visited the islands and obtained cargoes of very rich fur-seal skins. In the year 1818 Captain Smith, in the English brig William, bound from Montevideo to Valparaiso, discovered,† on the 15th of October, in latitude 62° 30′ south, and longitude 60° west, a new land where were fur-seal in abundance.

*Fanning's Voyages, New York, 1833, pp. 433, 434.

†The islands were first discovered about the year 1600 by Captain Gherritz, a Dutch navigator.

In his journal Captain Smith thus mentions the discovery: "After taking our departure from Montevideo, nothing material occurred until I got into the latitude of Cape Horn, with a fair wind to go to the westward, and steering S.SE. with the intention to make the island again, and continuing this course for a few days, I, to my great satisfaction, discovered land on the 15th of October, at 6 p. m., in latitude 62° 30′ south, and longitude 60° west. Arrived at Valparaiso 24th of November, after a passage of sixty days from Montevideo."*

In 1819, according to Captain Davidson, of Stonington, a brig was fitted at Buenos Ayres for sealing in the new land. At this season the brig Hersilia, of Stonington, was cruising about in search of seals, and had left Capt. Nath. Palmer and others of her crew at the Falklands while the vessels went on a short trip about Cape Horn, to return to the Falklands for those left behind.

In the mean time the Buenos Ayres brig put into the Falklands, and Captain Palmer, always on the watch for information about new sealing grounds, was not slow in obtaining from the mate of the brig definite knowledge of a new land where fur-seals could be captured by the thousands. The brig went on her course, and Captain Palmer waited impatiently for the Hersilia, which at last made her appearance, and very quickly prepared for the four days' sail to South Shetlands. It so happened that they arrived at the new land at a time when the entire crew of the Buenos Ayres brig were busy in the hold salting and stowing seal-skins. The newcomers were nevertheless welcomed, and at once went to work to secure a share from the immense number of fur-seal on the shores. It was now February, 1820, the season far advanced, and the Hersilia's supply of salt was limited, so that only about eleven thousand of the choicest and richest skins could safely be taken, though with her crew of twenty-four men fifty thousand skins might have been secured in a short time.

As they were anxious to report the discovery at Stonington, the Hersilia hastened home, and from the sale of her cargo realized a large profit to her owners, though the skins were at this time valued at only about $2 each. At Stonington there was now great activity among vessel owners in preparation for the next season, and a fleet of nine sail was soon ready at this port, besides as many more from other ports. The names of the vessels as remembered by Captain Davidson, who was on the schooner Express, were the following:

Brigs Frederick, Hersilia, Catherine, Emmeline, and Clothier;† schooners Express and Free Gift, with sloops Hero and Essex as tenders to the fleet, all hailing from Stonington. From Nantucket there was the schooner Huntress; New Haven sent the ship Huron; the brigs Charity and Henry and schooners Wasp and Aurora sailed from New York, while Boston and Salem sent the ship General Knox, the schooner Esther O'Kane, and one other vessel. This fleet of eighteen vessels arrived at the South Shetlands late in the autumn of 1820. Besides the American fleet there arrived ten English and two Russian sealing vessels, making a total fleet of 30 sealers, each anxious to secure a large cargo. As at South Georgia, so here, there was an indiscriminate slaughter of the animals, and in a few weeks upwards of 250,000 skins were salted, of which number the American fleet secured 150,000, while thousands of seals were killed and lost. As a consequence, when vessels visited the same locality the next season not over 5,000 good skins were taken.

Weddell, in 1825, gives the following account of the South Shetland seal fishery: "The quantity of [fur] seals taken off these islands, by vessels from different parts, during the years 1821 and 1822 may be computed at 320,000, and the quantity of sea-elephant oil at 940 tons. This valuable animal, the fur-seal, might, by a law similar to that which restrains

* Weddell's Voyages, p. 130.

† The Clothier was wrecked on the Shetlands, and her "bones," says Captain Davidson, are still "bleaching on the rocks."

fishermen in the size of the mesh of their nets, have been spared to render annually 100,000 fur-seals for many years to come. This would have followed from not killing the mothers till the young were able to take the water; and even then, only those which appeared to be old, together with a proportion of the males, thereby diminishing their total number, but in slow progression. This system is practiced at the island of Lobos, mouth of river Plate, whence from 5,000 to 6,000 skins are annually taken under the direction of the Argentine Government. The system of extermination was practiced, however, at the South Shetlands; for whenever a seal reached the beach, of whatever denomination, he was immediately killed and his skin taken, and by this means at the end of the second year the animals became nearly extinct; the young, having lost their mothers when only three or four days old, of course died, which at the lowest calculation exceeded 100,000."*

While in search of new sealing grounds American vessels have cruised over many miles in the Antarctic seas. During the season of 1820–'21, when thirty vessels were at the South Shetlands, one of the more venturesome of the sealers hoped to discover other fur-seal rookeries still farther south. Captain Pendleton had reported that from an elevated station at South Shetlands he had on a clear day seen land to the southward. Accordingly Capt. N. B. Palmer was sent out from the Shetlands in the sloop Hero, of about 40 tons, to explore the new land. He found it very sterile and desolate, and covered with ice and snow. Plenty of sea-leopards were there, but no fur-seal. While returning to the Shetlands the Hero was becalmed in a fog. As the fog began to lift, what was the surprise of Captain Palmer to find his vessel between a frigate and a sloop of war. These strange vessels proved to be two Russian ships on an exploring expedition. The commodore of the ships supposed himself to be the discoverer of the lands to the south, and was greatly surprised to see such a little Yankee vessel in such a remote quarter of the globe. So forcibly was the commodore struck with the circumstances of the case that he named the coast Palmer's Land, in honor of Captain Palmer.

MAS-Á-FUERA, JUAN FERNANDEZ, AND OTHER ISLANDS ON WEST COAST OF SOUTH AMERICA.

Another very important sealing ground visited by both the English and Americans in the early history of this fishery was the island of Mas-á-Fuera, on the coast of Chili, from which place, between the years 1793 and 1807, upwards of 3,500,000 fur-seal skins were obtained, and most of them taken to China. The first American vessel to take a cargo from this island to China was the ship Eliza, of New York, Captain Stewart, which arrived at Canton in March, 1793, with 38,000 skins, that sold for $16,000. In 1798 Captain Fanning took 100,000 skins to China, partly from the same place, in the ship Betsey, of New York, and he estimated that there was still remaining on the island after his departure between 500,000 and 700,000 seals. He estimates that about a million of seal-skins were subsequently taken to Canton from this island. Captain Morrell states that in 1807 "the business was scarcely worth following at Mas-á-Fuera, and in 1824 the island, like its neighbor, Juan Fernandez, was almost entirely abandoned by these animals." †

Delano, in his "Voyages," written in 1817, says: "When the Americans came to Mas-á-Fuera about the year 1797, and began to make a business of killing seals, there is no doubt but there were two or three millions of them on the island. I have made an estimate of more than three millions that have been carried to Canton from thence in the space of seven years. I have carried more than one hundred thousand myself, and have been at the place when there were the people of fourteen ships or vessels on the island at one time, killing seals." ‡

* Weddell's Voyage's pp. 141-142.
† Morrell's Voyages, New York, 1832, p. 130.
‡ AMASA DELANO: Narrative of Voyages and Travels; Boston, 1817; p. 306.

Concerning the voyage of the ship Eliza to China with skins from Mas-á-Fuera, Captain Delano says:

"The first ship that came to Mas-á-Fuera for the purpose of procuring seals for the Chinese market was the Eliza, Capt. William R. Stewart, which I took command of on her arrival at Canton, in the year 1793. She had been a long time on her voyage. Captain Palmer, who started from the United States with her, had left her previous to her arrival in China. Captain Stewart wished to find a market for his skins, and after I became acquainted with him we concluded to go to Canton together, leaving his ship in the harbor of Larksbay. I had come to Macao for the purpose of getting a passage home to America, and thought the Eliza would afford me one opportunely. It was in March when we were in Canton. * * * The price of seal-skins was very low at this time, and Stewart was not able to raise funds enough to load his ship on his own account, although she was small. He therefore took a freight of sugar for Ostend, in Flanders. * * * Having agreed for a freight, Captain Stewart ordered his ship to Canton. He sold his cargo of seal-skins, 38,000, for only $16,000, so reduced was the price of this article."

Concerning the abundance of fur-seals on the island of Juan Fernandez in 1683, Dampier thus writes in his work, entitled "A New Voyage Round the World," published in 1703: "Seals swarm as thick about this Island of John Fernando as if they had no other place in the World to live in; for there is not a Bay nor Rock that one can get ashoar on, but is full of them. * * * These at John Fernando's have fine thick short Furr; the like I have not taken notice of any where but in these Seas. Here are always thousands, I might say possibly millions of them, either sitting on the Bays, or going and coming in the Sea round the Island, which is covered with them (as they lie at the top of the Water playing and sunning themselves) for a mile or two from the shore. When *they come out of the Sea they bleat like Sheep for their young, and though they pass through* hundreds of other's young ones before they come to their own, yet they will not suffer any of them to suck. The young ones are like Puppies and lie much ashoar, but when beaten by any of us, they, as well as the old ones, *will* make towards the Sea and swim very *swift and nimble; tho'* on shoar they lie very sluggishly, and will not go out of our way unless we beat them, but snap at us. A blow on the Nose soon kills them. Large Ships might here load themselves with Seal Skins and Trayne oyl; for they are extraordinary fat."

Captain Scammon states that the sealing fleet off the coast of Chili in 1801 numbered thirty vessels, many of them ships of the larger class, and nearly all carried the American flag.

"The two islands discovered by Juan Fernandez in 1563," says Captain Morrell, "are about 110 leagues from the continent, bearing nearly west by south from Valparaiso. The largest of the two, or Robinson Crusoe's Island, is nearest to the main, and is therefore called by the Spaniards Mas-a-tierra, or 'near the land,' while the other, which lies 3 leagues farther west, is termed in the Spanish language Mas-á-Fuera, signifying 'farther off,' or more remote. Juan Fernandez, or Robinson Crusoe's island, is in latitude 33° 40′ south, longitude 78° 58′ west, being 90 miles eastward of Mas-á-Fuera, which is in latitude 33° 46′ south, longitude 30° 38′ west. The former island, which is of very irregular shape, about 10 miles long and 5 wide, was formerly frequented by fur and hair seals, but as early as 1824 these animals had found some other place of resort, though no cause has been assigned for the change. Mas-á-Fuera is of circular form, and about 20 miles in circumference. Its surface is well covered with wood, and is generally very fertile, although it has evidently suffered from frequent volcanic eruption. This island has been celebrated for the immense numbers of seals which have been found on its shores. From 1793 to 1807 there were constantly more or less ships' crews stationed here for the purpose of taking fur-seal skins, a part of which time there were from twelve to fifteen crews on shore at the same time, American and English."

The islands of Saint Felix, Saint Ambrose, and other small islands off the west coast of South America, were of greater or less importance in the early days of the fur-seal fishery. Even as far north as the Galapagos Islands, on the equator, fur-seals were found and captured by American sealers. All of those grounds have now been abandoned by the fur-seals.

In the letters of Eben Townsend, of ship Neptune, which are quoted at the close of this chapter, will be found an interesting description of Mas-á-Fuera and other seal islands along this coast.

PITCAIRN ISLAND.

Among the numerous islands that have been visited by American vessels in search of fur-seals is Pitcairn Island, in the South Pacific Ocean, in latitude 25° 2′ south, and longitude 133° 21′ west, about 3,000 miles west of South America. It was discovered in 1767 by Carteret, who describes it as not more than 5 miles in circumference, covered with trees, and apparently uninhabited. It received its name in honor of a son of Major Pitcairn, who accompanied the expedition.

Capt. Mayhew Folger, in the sealing-ship Topaz, of Boston, in February, 1808, visited the island in search of fur-seals. He found no seals, but did find one of the mutinous crew of the English ship Bounty, lost to England for twenty years.*

The Bounty left England in December, 1787, on an expedition to Otaheite to obtain the bread-fruit tree for the West Indies. There were on board forty-four men in all, under command of Lieutenant Bligh. They arrived at Otaheite in October, 1788, and remained there until April, 1789, when, having a sufficient quantity of plants, they set sail for the West Indies. On the 28th of April part of the crew mutinied and put Lieutenant Bligh with eighteen others in a boat and set them adrift, while the mutineers, twenty-five in number, took possession of the vessel. The lieutenant with eleven of his company reached England after a series of adventures. The vessel returned to Otaheite, when a part of the mutineers tarried at Otaheite, while nine of their number took the Bounty and sailed for a more remote place. They arrived at Pitcairn Island on the 21st of September, 1790, and finding some difficulty in landing they ran the vessel on the rocks and destroyed her. They had brought six Otaheitan men and some women with them.

After a few years' residence on this lonely isle, the Otaheitan men killed all but one of the Englishmen, when the women turned and killed the six Otaheitan men. There was now left a number of women and one man, who lived in peace and seclusion for many years.

November 19, 1790, the ship Pandora sailed from England in search of the Bounty and her mutinous crew. Ten of the mutineers were found at Otaheite and taken back to England, where they were tried and three were executed, the others being acquitted or pardoned. The party on Pitcairn Island saw no vessel, or at least none landed there until Captain Folger came there in 1808. Subsequent to that date many vessels have visited the island.

THE FALKLAND ISLANDS.

These islands, just prior to the beginning of the present century, were among the most important sealing-grounds in southern seas, but for many years past no seals have been taken there. They form a group of some two hundred islands about 250 miles northeast of Terra del Fuego, between latitude 51° to 53° south and longitude 57° to 62° west. Only two of them are of any size, East and West Falkland, separated by Falkland Sound. The former of these two islands is 85 miles long by 53 miles broad, and the latter 80 miles long by 40 miles broad. The number of inhabitants there in 1876 was 1,153, who are subjects of Great Britain. The islands were discovered in 1592 by

* For full details see Delano's Voyages and Travels, Boston, 1817, pp. 111-144.

Captain Davis, and in 1594 were visited by Sir Richard Hawkins. They were afterwards seen by the navigators Dampier, Strong, and others. Strong gave them their name in honor of Viscount Falkland. They were uninhabited when discovered by the English. In 1763, after losing Canada, the French made the first attempt to settle these islands, selecting them as a place of shelter for vessels bound to the south seas. The British took possession of the islands in 1765, but both attempts at settlements were unsuccessful The French ceded their settlement to the Spaniards in 1767, and the English abandoned theirs as useless in 1774.

Mr. Eben Townsend, who was sealing at the Falklands in 1797, writes in his diary as follows: "There are two principal islands, called English and Spanish Maloons, with a number of small islands. Each of the Maloon Islands is from 200 to 300 miles in length, and owned by the Spaniards, who, on the western part of the Spanish Maloon, keep a garrison. They have in several instances been troublesome to the Americans, but we saw nothing of them. The title to these islands has formerly been a subject of much controversy among the maritime powers. In 1790 the British took possession of Port Egmont. The Spaniards protested against it, to which no attention being given an expedition was fitted out from Buenos Ayres, which drove them off. The British Government demanded satisfaction for being dispossessed by force, and the imbecile Spanish Government, although in the right, acknowledged themselves in the wrong, disavowing their instructions to their officers, and ordered everything to be restored and placed as it was when they attacked it. The English, finding it of no importance, voluntarily evacuated it soon afterwards. In 1792 a cow was shot there that had been ranging the island alone for about twenty years. She was fat and in fine order. On that island there are plenty of hogs from the English stock, which are better than on the other islands. There is very little wood on any of the islands, but there is plenty of excellent water. The most convenient for a ship is West Point, or New Island. The latter place is in latitude 51° 40′ south, which is the most general for the whalemen. At Little West Point Harbor there is good water and plenty of hogs and some goats. All the islands produce plenty of wild fowl, geese, ducks, teal, rooks, curlews, &c., and plenty of eggs in October, November, and December, the albatross beginning to lay about the 1st to the 10th of October. Gulls, penguins, and other birds are taken. I have seen a dozen acres covered with the albatross nests, with just room to walk between them, built up with mud and straw about 2 feet in height. One of the eggs would about fill a tumbler. They were equal in flavor to hens' eggs. We took on board about twenty hogsheads for ships' stores, and we had them good for about four months. There are also plenty of gulls' and penguins' eggs; of the latter there are various kinds. The jackass penguins, making a noise like the bray of a jackass, burrow in the ground, where they lay their eggs. The gintoo penguins are in rookeries, like the albatross. As they have no wings and walk erect, whenever we walked among them they very gently opened to the right and left for us to pass. We found very few fish. We occasionally caught some alongside the ship. About the middle of December we took a few barrels of mullet in States Harbor with a seine. We also in that harbor found round clams, and among all the islands there are great plenty of mussels, which are very good; some winkles and limpets, which are small shell fish, that adhere to the rocks; a small blow suddenly given takes them off. They have but a single shell. We also found on these islands plenty of rats and some foxes, and in the earth the common angle-worm. On the whole these islands are bountiful. A man with a gun and ammunition might live very well. The climate is not pleasant, being subject to squalls of snow and hail, winter and summer; but it is never very warm nor very cold. I never saw ice there half an inch thick, and our sailors never put on stockings or wanted them during the winter. We had but little snow. There was no ice made in the harbor where we lay excepting a little on the edge of the shore.

"The soil of these islands is too cold and sour to be advantageously cultivated; but with the skill and industry of an English gardener many kinds of vegetables might be raised. We found very excellent celery on several of the islands, particularly at West Point, at the edge of the runs of water, very tender and well bleached, being protected from the sun by the surrounding grass. Cattle would find good grazing. The hogs support themselves, principally on what we call tussock grass. They are therefore not fat, but furnish good sweet meat. The tussock grass grows in bunches or clusters, of 5 or 6 feet in circumference and about 6 or 8 feet in height, so that we have free walk among them. The root and much of the stalk is what the hogs feed on. I was hunting among these tussock bogs one day when I suddenly came upon a wild hog, so near him that I stepped back one or two paces that the muzzle of my gun might not touch him. I snapped my gun twice; it missed fire. I then took out my knife and with it having sharpened my flint fired and killed him. During all this time the hog never moved, but looked directly at me. It is probable he had never seen a human being before. There is no fruit except berries of two or three kinds, all inferior, excepting what we called the tussock berry, which grew on a vine and had much the taste of our winter green. So variable is the atmosphere that I have frequently been picking berries in snow squalls."*

The following is related by Captain Morrell:

"In entering Falkland Sound from the south west there are three islands on the starboard side, one of which, called Eagle Island, has been the scene of a drama unparalleled in the annals of navigation for ingratitude, treachery, and perfidy. I allude to the treatment received by Capt. Charles H. Barnard, of New York, from the officers and crew of an English ship, whom he had previously rescued from all the horrors of shipwreck on a desolate island. In return for his kind offices they treacherously seized his vessel and made their escape, leaving him and part of his crew to endure all the privations and sufferings from which he had nobly preserved *them!* Captain Barnard's narrative of this horrible transaction is before the public, and ought to be in the hands of every reader. For nearly two years he was compelled to drag out a miserable existence on an uninhabitated island, in as high a south latitude as Kamtchatka is in the north.

"This unnatural act of perfidy was perpetrated in the year 1813, some time in the month of April, while Captain Barnard was engaged in a sealing voyage at the Falkland Islands, in a brig from New York, called the Nanina. On the 9th of February previous, the British ship Isabella, on her passage from Port Jackson, New South Wales, to London, had been wrecked on Eagle Island, a place where navigators seldom touch. From that time until they were relieved by the noble exertions of Captain Barnard, the officers, passengers, and crew of the Isabella remained on this uninhabited and inhospitable island, with no prospect before them but an uncertain period of precarious subsistence, to terminate in a fearful death from cold or famine, or both combined. There were several females among them to share the same fate.

"Captain Barnard had laid his brig up in Barnard's Harbor, and was in search of seal at Fox Bay, opposite Eagle Island, in a small shallop built for that purpose, when his attention was attracted by a rising smoke on the other side the strait. Suspecting the real cause of this unusual appearance, and prompted by his characteristic benevolence of heart, he immediately crossed Falkland Sound in his shallop for the purpose of relieving the sufferers, whoever they might prove to be. His errand of mercy was successful; and though they proved to be subjects of England, with whom our country was then at war, the benevolent purpose of Captain Barnard remained unchanged."†

* Manuscript Diary, 1797.

† Morrell's Voyages, p. 55.

SOUTH GEORGIA ISLAND.

Among the first places visited by American and English sealing vessels was the island of South Georgia, in the South Atlantic Ocean. It is in about latitude 54° 58′ south, a few hundred miles eastward of Cape Horn, and, with the adjacent Clerke's Rocks,* forms a group of desolate uninhabited islands, fit only for the home of hardy seals. This island was discovered by Monsieur La Roche in the year 1675, and was visited by a vessel called the Lyon in 1756, but was not brought to public notice until Captain Cook in the Resolution explored the island in 1771, and in his official report gave an account of the abundance of sea-elephants, or, as he termed them, "sea-lions," and fur-seals found upon the shores. Vessels were soon equipped by enterprising merchants for the purpose of taking these amphibious animals.

In the spring of 1800 Captain Fanning sailed from New York in the ship Aspasia, bound on an exploring and sealing voyage to the south seas. The ship was commissioned as a letter of marque, and was armed with twenty-two guns. After visiting the Tristan Islands without securing any seals, the Aspasia sailed for South Georgia, and during the sealing season secured 57,000 fur-seal skins. Owing to the severe gales of wind at these islands it was necessary to moor the Aspasia with three anchors ahead and two astern. As was usual on these voyages a shallop was built for cruising along shore among the islands while searching for seals. Captain Fanning states that when the summer season set in, in November, "seventeen sail of sealing vessels, mostly ships with their shallops, arrived at this island. We had rather the start, however, for our men having been previously placed at the different stations, and aided as they were by the fast sailing little vessel, were enabled, out of the 112,000 fur-seal skins taken by the crews of all vessels during the season, to secure 57,000 for our share."

Captain Weddell, writing about South Georgia in 1825, says that "since the year in which seals were known to be so abundant not less than 20,000 tons of the sea-elephant oil has been procured for the London market. A quantity of fur-seal skins were usually brought along with a cargo of oil; but formerly the furriers in England had not the method of dressing them, on which account they were of so little value as to be almost neglected. At the same time, however, the Americans were carrying from Georgia cargoes of these skins to China, where they frequently obtained a price of from $5 to $6 apiece. It is generally known that the English did not enjoy the same privilege, by which means the Americans took entirely out of our hands this valuable article of trade. The number of skins brought from off Georgia cannot be estimated at fewer than 1,200,000. I may here also remark that the island of Desolation, which Captain Cook likewise visited, and first made known, has been a source of scarcely less profit than the island of Georgia. Hence it may be presumed that during the time these two islands have been resorted to for the purpose of trade more than 2,000 tons of shipping and from two to three hundred seamen have been employed annually in this traffic.

"Having thus given," continues Weddell, "an idea of the value of what has already been discovered in the south seas, I shall say something of the island of Georgia, as to its extent and peculiarities. The island is about 96 miles long, and its mean breadth about 10 miles. It is so indented with bays that in several places, where they are on opposite sides, they are so deep as to make the distance from one side to the other very small. Near the middle is an iceberg, which seems to run from side to side. The tops of the mountains are lofty, and perpetually covered with snow; but in the valleys, during the summer season, vegetation is rather abundant. Almost the

* Named after Captain Clerke, second in command to Captain Cook.

only natural production of the soil is a strong-bladed grass, the length of which is in general about 2 feet. It grows in tufts on mounds 3 or 4 feet from the ground. No land quadrupeds are found here; birds and amphibious animals are the only inhabitants."*

The sealing business at South Georgia was most prosperous about the year 1800. In the season commencing November, 1800, and ending in February, 1801, sixteen American and English vessels took 112,000 fur-seal skins from this place.

The island was not visited by sealers for many years, and as a result, the seals being undisturbed, began to increase in numbers. Since the year 1870 several cargoes of sea-elephant oil and some fur-seal skins have been obtained there by American vessels. There seems no probability, however, that there will ever again be as many seals here as was found in the early part of the present century.

BOUVETTE'S ISLAND AND SANDWICH LAND.

Bouvette's Island is east of South Georgia, in latitude 54° 15′ south, longitude 6° 11′ east, about 1,200 miles south-southwest from Cape of Good Hope. It was first seen and named by Captain Bouvette in October, 1808. It is about 25 miles in circumference. The island is of volcanic origin, and rises in one part to a height of 3,000 feet. On the western shore is a large number of ice islands, some of them a mile or more in circumference. Captain Morrell secured a few hundred fur-seal skins here in 1822, and many other American sealers obtained partial cargoes.

Sandwich Land, a group of rocky islands, about 200 miles south of South Georgia, was frequented by American sealing vessels prior to 1830, and partial cargoes of fur-seal skins and sea-elephant oil obtained there. There is no large island in the group, but a series of volcanic rocks, the more important of which are Candlemas, Saunders, Montague, and Bristol Islands, and Southern Thule.

Captain Morrell visited Sandwich Land in 1823, and thus describes this region: "On Friday, the 28th of February, the cheering cry of 'land ho!' resounded from aloft. This proved to be Candlemas Isles, the most northerly islands of Sandwich Land; latitude 57° 10′ south, longitude 26° 59′ west (from Greenwich). These two islands are of no great extent, but one of them is of considerable height, both being burning volcanoes, and the most western having burnt down nearly to a level with the sea. We continued examining these islands towards the south, until we arrived at the Southern Thule, where, on the northeast side of the westernmost island, we found a good harbor. In this group we saw nine burning volcanoes—fire in abundance, but no fuel for the Wasp. Three of these islands had vomited out so much of their entrails that their surfaces were nearly even with the water. We looked on these islands in vain for wood, of which we were very much in want, as we had not made a fire on board the Wasp but once a week for the last fourteen days, having with that fire boiled meat sufficient to serve the officers and crew for seven days; and this economical regulation we were obliged to adhere to until we arrived at Staten Land, on the 24th of March. All the islands which constitute Sandwich Land are entirely barren. Those parts which have not been consumed by internal fires are very high and covered with perpetual snow; the rest is broken land. The westernmost of the Southern Thule is in latitude 59° 35′ 10″ south, longitude 27° 42′ 30″ west. After having examined the islands of Sandwich Land without discovering a single fur-seal and only about four hundred sea-elephants, together with about fifty sea-dogs, we again directed our attention towards the Antarctic Seas."†

TRISTAN D'ACUNHA.

Tristan d'Acunha is a group of three islands situated in mid-ocean, nearly on a line from Cape Horn to Cape of Good Hope, about 1,500 miles west by south of the latter, and 2,000 miles

* Weddell's Voyages, 1825, pp. 53–55.

† Morrell's Voyages, New York, 1832, p. 66.

from the former. Tristan, the largest of the group, is about 15 miles in circumference, and its highest peak, elevated some 8,326 feet above the sea, is visible for nearly 75 miles. The other two islands are called Inaccessible and Nightingale, the three, about 10 miles apart, forming a triangle, with Tristan as the northeast point. The group was discovered by the Portuguese in the sixteenth century, and was further explored by the Dutch in 1643 and by the French in 1767.

The islands were for many years a favorite resort of whaling and sealing vessels. Fur-seals were here very plenty at the close of the last and beginning of the present century. In the season of 1790, lasting from August in that year to April, 1791, the schooner Industry, of Philadelphia, under Captain Patten, obtained here 5,600 skins for the Chinese market. Captain Patten says he could have loaded a large ship with oil in three weeks, so abundant were the sea-elephants. September he reckoned to be the best month for making oil at these islands.

About the year 1810 three of the crew of an American sealing vessel then at the island determined to remain there a few years in order to prepare seal skins and oil and sell the same to vessels that might touch there. They were Yankees, and with Yankee pluck they cleared about 50 acres of land and planted coffee, sugar-cane, and seeds of other plants. Success crowned their efforts, and it seemed as if an important settlement might be the outgrowth of this little colony. One of the number, Jonathan Lambert, declared himself sovereign proprietor of these islands. The project was abandoned in a few years, and in 1817 the British Government took possession with a detachment of troops. After the withdrawal of the troops a corporal named Glass received permission to remain, and a small colony soon after sprung up, which has survived till the present time and numbered in 1873 about ninety persons.

The English exploring ship Challenger visited the place a few years ago, and Mr. Moseley, in his narative of the expedition, describes the Tristan group as follows: "It has a cold, barren appearance; a terrible climate; for nine months of the year constant storm and rain, with snow. It is only in the three summer months that the weather is at all fine. In October, the 'bad season,' as the islanders called it, was just beginning to pass away, but the weather was so uncertain that the ship might have had to leave her anchorage at a moment's notice, and only a steamer dared anchor at all.

"The cottages are built of huge blocks of a soft red stuff, fitted together with mortar, and are thatched with tussock-grass. They are all low one-storied structures, formed with low stone walls about them, in which a few vegetables are grown, and pigs and geese roam about. The potato fields are all walled for protection from the wind. * * *

"The sea-elephants (*Morunga elephanta*) have almost deserted the island. The last was seen two years before our visit on the beach just below the settlement. The islanders make yearly visits to Inaccessible and Nightingale Islands in pursuit of seals, but these are becoming scarcer every year."

At Inaccessible Island, which is about 23 miles distant from Tristan Island proper, and which has an area of about 4 square miles, Mr. Moseley found two Germans, who had been there two years, having been landed by a whaling vessel in hopes of their obtaining some fur-seals, but in this they were disappointed.

Nightingale Island is about 20 miles southwest of Tristan Island, and has an area of about one square mile. It is very rocky, and is covered with tussock-grass higher than a man's head. Numerous caves in the low cliffs along the shore are frequented by fur-seals. Mr. Mosely states that 1,400 were killed by one ship's crew in 1869 or 1870. The island is visited annually by the Tristan people, though but few seals are captured.

GOUGH'S ISLAND.

Gough's Island, or Diego Alvarez, as it was originally named by the Portuguese, who discovered it, is in latitude 40° 19′ south, 9° 44′ west longitude, a short distance to the southward of the Tristan Group. It was seen in 1713, by Capt. Charles Gough, in the Richmond, bound to China, and has since gone by his name. The highest part of the island rises some 4,000 feet above the sea. The island at one time abounded with fur-seals and sea-elephants, but is now about deserted by those animals. About 1825, a party of American sealers lived there, but met with such indifferent success that it was abandoned.

WEST COAST OF AFRICA.

The southwest coast of Africa, from Cape of Good Hope to about 16° south latitude, was frequented by American sealing vessels at the beginning of this century, and until about the year 1835, when fur-seals had become very scarce. As many as 500 to 700 skins were sometimes taken in a day by the crew of a small vessel; the fur of about the same value as of those captured at Falkland or at Cape Horn. It is impossible to estimate the total number of skins secured on the African coast by American vessels, but it certainly numbered several thousands.

Capt. Gurdon L. Allyn, of Gale's Ferry, Conn., gives us an account of his experience on this coast in 1830, and subsequent voyages until 1835. In 1830 he commanded the sealing schooner Spark, of New London, Conn. In describing this voyage, he says:

"We arrived on the barren coast of Africa, in the latitude of 26° south, on January 14, 1830. At that place is a small island, a mile or more from the coast, on the inside of which is a fair anchorage. This island, called Ichaboe, is the rendezvous of millions of sea-birds, which there lay their eggs and hatch their young, and we obtained at this time and afterwards quantities of eggs, many of which are excellent for food. The birds were so thick as to prevent our traveling on shore without first beating passage-way with our seal-clubs, and yet we endeavored not to hurt them, although they regarded us as intruders, and attacked us with ferocity, scratching and biting with such effect as to draw blood through the legs of our pantaloons. We were plentifully supplied with eggs during the fifteen months that we were on this coast, our men eating gulls' and penguins' eggs without much distinction, although the former are much superior. We had arrived at this island too late for the season, for an examination of the shore revealed about a thousand carcasses of seals which had been deprived of their skins by those who had arrived there on a similiar errand to ours.

"The coast was well sealed, and we could only glean a few from the roughest rocks. Six days passed, and our consort, the schooner General Putnam, of Newburyport, arrived; and as we were likely to fall short of water, this being a barren, sandy coast, without rain oftener than once a year, we put our water-casks and our mate on board of her and despatched her south to Saldaña Bay, while her captain came on board of our vessel and proceeded with us to seal along the coast. We found a few seals at each landing, * * * and by the 6th of September had taken 600 seal skins. On the 13th of September we obtained 175 fur-seal skins; * * * on November 21 we took 234 prime seal-skins; on December 29 230 seal-skins, and on the 31st 250 skins; January 1, 1831, took 500 skins; March 2 we took 740 skins, which was a good day's work, and attended with great labor and excitement. On March 21, we started for home."*

In the year 1834 Captain Allyn was on a sealing voyage on the African coast in the schooner Betsy, in company with the brig Tampico. They arrived on the coast October 5, and at Angra

* The Old Sailor's Story; Norwich, Conn.: 1879.

Pequeña Bay landed surplus provisions, shooks, and some other articles, and prepared for cruising. Captain Allyn says: "On the third or fourth day we started northward, examining rocks and islands on our way with little success. We proceeded to Ichaboe Island, where we found plenty of eggs and crawfish, a sort of lobster, with no large claws. We went to Mercury Island, thence to Bird Island, 70 miles farther, the farthest off-shore island on this part of the coast, where the anchorage is bad on account of rocky bottom, and the surf oftentimes renders landing difficult and dangerous. Here we procured a few seal, then skirted the coast back to Angra, where we set up casks and made general preparations for both whaling and sealing.

"The usual time of the seals coming on shore is from the 10th to the 25th of November, where they remain, if undisturbed, several months, or until the young, which are ushered into existence soon after the landing, are able to take care of themselves. They generally shed their coats of hair in February, and the pups become silver-gray and pass as yearlings at about eight months of age. During the season which now followed we found the seal scarce and shy, but by diligence we managed to secure some 800 skins, which was a slim season's work, as we had the whole coast to ourselves. It was now the 1st of June, 1835, and we consorted awhile with the whale ship Bingham, exchanging our first mate's with their boats' crews, and cruised up and down the coast seeking whales and finding none. After a month and a half, during which time the Bingham secured one whale and we one less, we concluded whaling was rather slim, so I started on a cruise to the southward, doubled the Cape of Good Hope and landed on Dyer's Island, where we procured 700 prime seal skins, which somewhat revived our drooping spirits. We returned to Angra, having procured wood at Cape Voltas on our way, and found the Tampico absent on a cruise to the northward, and a Boston sealing schooner, Captain Clark, in the harbor. It was September, and as no seals were to be taken, we overhauled and painted the brig, waiting for the seals to come up, occasionally examining the rocks, but with little success.

"The seals having been harassed so much the prospect was slim for the next season, but by putting men on the small rocks to shoot them, and by great diligence, we managed to secure about 1,000 skins to both vessels, which was a slim season's work."

The Betsy sailed for home in January and arrived in March, when, the sealing business having ceased to be remunerative, on account of a decline in the price of furs, the owners concluded to send the vessel on a West Indies voyage.

In 1828 Captain Morrell, in the schooner Antarctic, visited the west coast of Africa on a fur-seal voyage. At Possession Island, in latitude 26° 51′ south, he found evidence of a pestilence among the fur-seals. The whole island, which is about 3 miles long, he states was "covered with the carcasses of fur-seals with their skins still on them. They appeared to have been dead about five years, and it was evident that they had all met their fate about the same period. I should judge, from the immense multitude of bones and carcasses, that not less than half a million had perished here at once, and that they had fallen victims to some mysterious disease or plague."

About 17 miles north of Possession Island are two small islands not over a mile in length, where Captain Morrell found still further evidence of a plague among the fur-seals. "These two islands," he says, "have once been the resort of immense numbers of fur-seals, which were doubtless destroyed by the same plague which made such a devastation among them on Possession Island, as their remains exhibited the same appearance in both cases."* Other parts of the coast were visited, and at Ichaboe and Mercury Islands several thousand skins were secured. The latter island is only about a mile in circumference, and is in latitude 25° 42′ south.

* Morrell's Voyages, New York, 1832, p. 291.

PRINCE EDWARD AND CROZET ISLANDS.

The Prince Edward group is in the Southern Indian Ocean, about 450 miles southeast of the Crozet Islands, and 960 miles distant from Algoa Bay, Africa. The group is composed of the two islands of Marion and Prince Edward, the center of the former being in about latitude 46° 52′ south and longitude 37° 45′ east, and the center of the latter island in about latitude 46° 36′ south and longitude 37° 57′ east. Marion, the larger of the islands, is about 11 miles long and 8 wide. Both the islands are volcanic. One peak, on Marion Island, rises to a height of 4,500 feet.

Fur-seals and sea-elephants once abounded here, and the islands were frequently visited by American sealers until within the last twenty or thirty years. Capt. Gurdon L. Allyn, of New London, Conn., who was sealing on the islands in 1842, says: "Marion Island is of a triangular shape, and has a coast line of about 50 miles. Running through the center, in a southeasterly direction from the north part, is a rise of high mountains whose peaks are thousands of feet in height, covered with perpetual snow. The margins and sides of these mountains are composed of volcanic cinders, called clampers, the walking upon which will thoroughly demoralize a new pair of boots in one day's time. In some places this island can be approached within a short distance; in other places dangerous reefs extend off shore. In several places are strips of beaches which are more or less frequented by sea-elephants; in other places large masses of irregular shaped rocks render walking along the shore impossible. There is one poor harbor, called Uxor, on account of a vessel by that name having been wrecked there by dragging ashore. The north island is considerably smaller and the best anchorage is in a small bay or roadstead at the extreme southeast point. Here we found the holding ground, and rode out several severe gales in safety. The land of both islands is similar. Probably both are of volcanic origin, and they are a sterile, desolate region, unfitted for the abode of humanity. Here we found the schooner Emmeline, of Mystic, on the same errand as ourselves, and we anchored near her. It being late in the season, the elephants were poor, yielding only a few gallons apiece. We consorted with the Emmeline and worked the beaches together. We also found a gang of men here from the Cape of Good Hope, taking oil for a schooner which they expected at a stated time. We worked the beaches of both islands, and obtained about 175 barrels of oil, and left on the 7th of January, 1853, for the Crozet Islands."*

The Crozet Islands comprise a group of four small uninhabited isles in the Southern Indian Ocean, between Kerguelen Land and the Prince Edward group. The most eastern island is in about latitude 46° 27′ south and longitude 52° 14′ east. They were discovered by Captain Crozet, who, however, did not land there. By the aid of a copy of the discoverer's manuscript, Capt. Henry Fanning, in the ship Catherine, of New York, was enabled, about the year 1805, to rediscover this group, and to obtain from there a valuable lot of fur-seal skins. The crew of the Catherine are believed to have been the first human beings that ever stepped upon the shores of these islands. They began the sealing business here which during the next forty years was of much importance. Besides an abundance of fur-seals, there were great herds of sea-elephants here, and these were the object of pursuit by numerous English and American oil ships, especially from 1830 to 1840. Whaling vessels spent part of the year here and took sea-elephants for their oil, making what were called "mixed voyages."

The most southern of this group of islands Captain Fanning named New York Island; the most western he called Fanning's Island, and the third one, which is very high and mountainous, he named Grand Crozet.

* The Old Sailor's Story; Norwich, Conn.: 1879.

There was much jealousy and rivalry among the sealers in early years, and whenever a new rookery was discovered every effort was made to keep the location a secret as long as possible. When Captain Fanning found the Crozets and saw abundance of seals there he returned to Prince Edward Land, where part of his crew had been left, and made preparations to return to the new land for a cargo of skins. Other sealing vessels were at Prince Edward Land, and that they might no suspect Captain Fanning's discovery he waited a few days before sailing. Before leaving home he had received instructions to deposit on Prince Edward Land a record of the location of the Crozets if he succeeded in rediscovering them. This record would be used by other sealing vessels sent out by the same firm. Captain Fanning therefore buried a record giving the desired information, and erected a pile of stones near the spot, though sufficiently distant to deceive strangers. He had been particularly instructed to erect this pile of stone 30 feet northeast of the spot where he planted the record. Vain efforts were made by the crews of the other sealing vessels at the island to find Captain Fanning's record. They removed the pile of stones and dug a great hole, but found nothing. Not long after this the ship for which the record was intended arrived there, and very easily found the papers and proceeded to the Crozets where Captain Fanning, after procuring a full cargo, had left a sealing crew to await the coming of this vessel.

DESOLATION ISLAND.

Kerguelen or Desolation Island and Heard's Island have been the principal hunting grounds for the sea-elephant. From these two islands during the last forty years American sealing vessels have brought home about 175,000 barrels of sea-elephant oil and a considerable number of fur-seal skins. The sea-elephant had been taken by whalers for a number of years before vessels specially fitted for this work were sent out. The headquarters for this business was New London, Conn., which place has continued until the present year to send vessels there.

The fishery at Desolation was begun in earnest by Americans in 1837. Prior to that date English vessels had taken quantities of the oil of that seal, but Americans had not taken an active part in the business.

At Heard's Island the fishing began in 1854. The two islands were usually worked together, Desolation in the colder months and Heard's Island for a brief period in the Antarctic summer.

The islands are about 300 miles apart, in the Southern Indian Ocean. Kerguelen Land extends from latitude 48° 39′ to 49° 44′ south and from longitude 70° 35′ to 68° 42′ east. Heard's Island lies to the south and east of Kerguelen, in latitude 53° 10′ south and longitude 73° 30′ east. Some 25 miles to the westward of Heard's Island lies McDonald Island, upon which seals are said to congregate in considerable numbers, but the shores are so precipitous that boats cannot land.

Kerguelen Land was discovered in 1772, by M. de Kerguelen, a French navigator. He mistook it for a southern continent, and so reported it to his Government. A further examination was made in 1773, and the mistake discovered. About 1776 Captain Cook visited the islands, but considered them of such little importance that he named the principal one of the group the "Island of Desolation." The safe and commodious harbors of the island were favorite resorts for whaling vessels cruising in that ocean in the early part of the present century. The greatest length of the island is 85 miles and the greatest breath 79 miles. Its area is about 2,050 square miles. There are numerous sharp mountain peaks, and Mount Ross, the principal peak, is 6,120 feet high. The coast is indented by many deep bays and inlets, making the shore much like that of Norway in general appearance. "The general aspect of the island," says Dr. Kidder, "is desolate in the extreme. Snow covers all of the higher hills, against which the abrupt outlines of their dark basaltic ridges

are most clearly defined. Only along the sea-shore is a narrow belt of herbage, of which the singular Kerguelen cabbage is at once the largest and most conspicuous component. The weather is also extremely inclement, there being scarcely a day without snow or rain. * * * In former years the Kerguelen group of islands was noted as a favorite breeding place for the sea-elephant. On this account it has been much frequented by sealers for the last forty years, and resorted to also by whalers as a wintering place, on account of the great security of Three Island Harbor. The sea-elephants have been so recklessly killed off year after year, no precautions having been taken to secure the preservation of the species, that now they have become very rare. Only a single small schooner, the Roswell King, of New London, Conn., was working the island during our visit (1874–75); two others and a bark working Heard's Island, some 300 miles to the south, where the elephants are still found in considerable numbers. Probably they would long since have abandoned the Kerguelen Island altogether but for a single inaccessible stretch of coast 'Bonfire Beach,' where they still 'haul up' every spring (October and November), and breed in considerable numbers. The beach is limited at each end by precipitous cliffs, across which it is quite impossible to transport oil in casks, nor can boats land from the sea or vessels lie in the offing, from the fact that the beach is on the west, or windward, coast, and exposed to the full violence of the wind. * * *

"The increasing scarcity of the sea-elephant, and consequent uncertainty in hunting it, together with the diminished demand for the oil since the introduction of coal-oil into general use, have caused a great falling off in the business of elephant-hunting. The Crozet Islands, for example, had not been worked for five years, and at Kerguelen there was only one small schooner engaged in this pursuit, two others making Three Island Harbor their headquarters, but spending the season at Heard's Island, 300 miles to the southward. It may therefore be reasonably hoped that these singular animals, but lately far on the way toward extinction, will have an opportunity to increase again in numbers, and that sealers may learn from past experience to carry on their hunting operations with more judgment, sparing breeding females and very young cubs. When the Monongahela visited the Crozet Islands, on December 1, they found the sea-elephant very numerous, although left undisturbed for only five seasons."*

HEARD'S ISLAND.†

One of the most desolate and at the same time most profitable hunting grounds for the sea-elephant is the pile of rocks and ice known to sealers as Heard's Island. It was discovered by Captain Heard or Herd, a Boston navigator, in 1853. Several years prior to that date New London sealers while cruising south of Desolation, reported that land could be seen from the mast-head, but none had gone near enough to be sure of a new land until Captain Heard's discovery. He did not land on the shores. The first landing was made in 1854 by Capt. E. D. Rogers, of New London, who was then on a whaling and sealing cruise in the ship Corinthian.

Captain Rogers gives the following account of this visit:

"In November, 1853, I left New London in the ship Corinthian, bound on a whaling voyage, and while cruising from Desolation Island in January, 1854, concluded to visit Heard's Island, that I learned had been recently discovered by Captain Heard in a Boston vessel. As soon as we reached the island men were sent ashore and reported a great abundance of sea-elephants, and in fact we could see great numbers of them lying on the beaches. We were the first men, so far as

* Contributions to the Natural History of Kerguelen Island, made in connection with the United States Transit-of-Venus Expedition, 1874–75. By J. H. Kidder, M. D. Bull. U. S. Nat. Mus., No. 3, 1876.

† Also spelled Herd's Island, as on the accompanying sketch map, prepared by Capt. H. C. Chester, who spent several seasons there hunting the sea elephant.

known, that ever landed on this desolate island. As the summer season was fast drawing to a close we concluded to sail immediately to Desolation Island, and, with our tenders, the schooners *Atlas and Mechanic, return to Heard's Island and secure some oil. It is only about 300 miles* from one island to the other, so that by the first of February we had returned to the new land and anchored in a small bay that we called Corinthian Harbor. The next morning we found that our *ship had dragged anchor and was almost aground. With much difficulty* we got her into deeper water, and having made her as secure as possible with heavy riding anchors, sent ashore about thirty men to examine the place and kill the elephants. We remained at the island about a week, our men going ashore each morning and returning to the vessel at night. There were thousands of the animals upon the sandy beaches, so that there was little difficulty in getting all we wanted. After securing about 500 barrels of the blubber we sailed for Desolation Island and tried it out. As soon as possible we sent word of our good luck to our agents, Messrs. Perkins & Smith, at New London, Conn., and they purchased the ship Laurens, which was thoroughly equipped, and, under command of Capt. Frank Smith, sailed for this land in September, 1855. The island was fully explored by Captain Smith and his men, all the headlands and bays named, and a rough map drawn. A full cargo of elephant oil was obtained, and in May, 1857, the Laurens arrived home at New London with about 4,700 barrels of elephant oil and 500 barrels of whale oil, the entire cargo being valued at $130,000."

Heard's Island is about 300 miles to the southward of Desolation, and 2,500 miles southeast of the Cape of Good Hope, in about the same latitude as the Straits of Magellan. It stretches in a general direction about northwest and southeast. Its greatest length is about 20 miles, and greatest breadth about 6 miles. Its area is about 80 square miles. It is of irregular form, somewhat in the shape of a boot with the sole at the southeastern end.

Near the central part of the island a snow-clad peak, known as Big Ben, rises to the height of 5,800 feet, while a large part of the island is covered with ice, making it difficult to transport *articles from one part to another.* There are many sandy beaches, bluffs, and bays, appropriately named by the sealers, either from some peculiar characteristics of the place or in honor of vessels or sealing captains. At one extremity of the island is Cape Laurens, a perpendicular cliff of rocks *named in honor of the sealing bark Laurens, of New London.*

Along the northerly side of the island, commencing at the northwestern end, are Corinthian Bay, Whisky Bay, and Morgan's Bay. On the west side of Corinthian Bay are perpendicular cliffs. Near the extremity of these cliffs is Shanghai Beach, small in extent. On *the easterly* side of the bay are rough rocks, called Reef Rocks. This is the principal anchorage for the vessels, and, compared with the other bays, is well sheltered. A high headland, known as Rodger's Head, separates Corinthian from Whisky Bay. The latter bay is quite exposed to the sea, so *that* vessels must have very heavy riding gear. A few miles off shore from Whisky Bay is a small cluster of rocks, called Shag Rocks, where large numbers of penguins collect. In standing in toward Whisky Bay in a vessel the island appears to be divided into two parts until you pass Shag Rocks. This appearance is caused by the low land from the head of the bay across to the other side of the island.

Saddle Point forms the eastern side of Whisky Bay. Morgan's Point is on the western side of Morgan's Bay, a very slight indentation of the coast to the eastward of Whisky Bay. On the southerly side of the island there are no bays or good anchorage for vessels, nor is there a safe landing place for boats, the whole side being very much exposed to the wind and waves.

The hauling places for sea-elephants on the island are the sandy beaches. There are several of these on both sides of the island. The most important on the north side are Stony Beach

and Fairchild's Beach, both near the easterly end. At the former beach no landing can be made, but blubber must be rafted off. Fairchild's Beach has a good landing place. A long sandy point, sometimes called Southwest Beach, forms the "toe" of the island. In rough weather the breakers extend 6 miles off from this point. Next to Southwest Beach, as we pass along the "sole" of the island, we come to Little Beach, where elephants are killed and the blubber either rafted off in boats or carried across the intervening ice to Southwest Beach.

The "heel" of Heard's Island is a perpendicular bluff of rocks and ice. Near the "heel" on the southwest side of the island is Long Beach, which is generally covered with sea-elephants the year round. A sealer's hut is built at each end of this beach, for men to live in that are sent over from the other side of the island to drive off the elephants, in hopes that they may haul up on more accessible beaches, where they may be killed and the blubber secured. It is impossible to land here with boats, and vessels cannot get near on account of reefs and heavy breakers, that extend 5 or 6 miles seaward. Captain Chester, who was sealing on the island in 1860, estimated that the number of elephants on Long Beach any day throughout the year would make from 10,000 to 15,000 barrels of oil. The men have to travel over rough icebergs to reach this beach, and it is quite a dangerous task on account of the many chasms in the bergs that must be leaped over.

Next to Long Beach is a small stretch of sandy shore, where the elephants are crowded in large numbers, but the place is inaccessible to man, because of the fearful icebergs intervening. At Southwest Beach, on this side of the island, opposite Whisky Bay, sea-elephants are killed, and after being stripped, the blubber is with great difficulty carried over the icebergs to the huts, where it is tried out or carried aboard the vessels.

On several parts of the island, but chiefly on the northerly side, are small houses or huts in which the men live during the elephant season or when wintering here. At the time of Capt. H. C. Chester's visit there in 1860 there were no huts in Corinthian Bay, but at the head of Whisky Bay there were two, one of them the "Roman's" house and the other the "Colgate's," called so from the names of the vessels whose crews built them. At Saddle Point there was a house, and a little farther south another one, built by the Roman's crew. At Fairchild's Beach there was a house, and beyond that, just eastward of a great flat iceberg, were more houses. On Southwest Beach Point, at the "toe" of the island, there were three houses, and two previously mentioned at Long Beach.

The English exploring ship Challenger visited Heard's Island in 1874, and from Mr. Moseley's account of that visit we quote the following interesting description of that dreary place:

"Whisky Bay is near the northernmost extremity of the island. To the southeast of the ship, as she lay in the small bay, were seen a succession of glaciers descending right down to the beach, and separated by lateral moraines from one another; six of these glaciers were visible from the anchorage, forming by their terminations the coast-line eastward. They rose with a gentle slope, with the usual rounded, undulating surface, upward towards the interior of the island, but their origin was hid in the mist and cloud, and Big Ben, the great mountain of the island, said to be 7,000 feet in height, was not seen by us at all.

"One of the glaciers, that nearest the ship, instead of abutting on the sea-shore directly with its end as did the others, presented towards its lower extremity its side to the action of the waves, and ending somewhat inland, formed a well-marked but scanty moraine.

"To the sea-shore this glacier presented a vertical wall of ice, resting directly upon the black volcanic sand composing the beach. In this wall was exposed a very instructive longitudinal section of the glacier mass, in which the series of curved bands produced by differential motion were most plainly marked, and visible from the distance of the anchorage. The ice composing the wall or cliff was evidently being constantly bulged outwards by internal pressure, and masses were thus

being split off to fall on the beach, and be melted, or floated off by the tide. The ice splits off along the lines of the longitudinal crevasses and falls in slabs of the whole height of the cliff; a freshly fallen slab, a longitudinal slice of the glacier, was lying on the beach. The fallen ice floats off with the tide. Some stones, which were dredged in 150 fathoms between Kerguelen's Land and Heard's Island, were believed by Mr. Buchanan to have been recently dropped by floating ice from Heard's Island. The stones in question were as yet not penetrated by the water.

"The other glaciers in sight cut the shore-line at right angles, and thus had no terminal moraines, the stones brought down by them being washed away by the sea. Above, the glaciers were covered with snow, which, as one looked higher and higher, was seen to gradually obliterate the crevasses and assume the appearance of a névé. The extent of glacier free from snow was very small, the region in which thawing can take place to any considerable extent being confined to a range not far above sea-level. * * * The dirt and stones on the surface of the ice were, as usual, more abundant towards the termination of the glacier and the moraine, but they were not so abundant as usual, and there were no large stones amongst them, nor were such to be seen in the moraine.

"The harpooner of the Emma Jane, the whaling schooner with which we fell in at Kerguelen's Land, told me that he had always wondered where the stones on the ice came from at all, and no wonder, for Big Ben is usually hidden from view, and the glaciers seem to have nothing above from which the stones might come. Most of the stones, no doubt, reach the surface and see the light only when they are approaching the bottom of the glacier.

"The terminal moraine showed the usual irregular conical heaping, and marks of recent motion of the stones and earth composing it from the thawing of the ice supporting them, and a small stream running from the glacier-bed cuts its way to the sea through a short arched tunnel in the ice, as so commonly occurs elsewhere. A small cascade poured out of the ice-cliff on to the sea-shore from an aperture about half way up it. All the moraines showed evidence of the present shrinking of the glaciers.

"The view along the shore of the successive terminations of the glaciers was very fine. I had never before seen a coast-line composed of cliffs and headlands of ice. None of the glaciers came actually down into the sea. The bases of their cliffs rested on the sandy beach, and were only just washed by the waves at high water, or during gales of wind.

"The lateral moraines were of the usual form, with sharp-ridged crest and natural slopes on either side. They formed lines of separation between the contiguous glaciers. They were somewhat serpentine in course, and two of them were seen to occur immediately above points where the glaciers on either hand were separated by masses of rock *in situ*, which masses showed out between the ice-cliffs on the shore and had the ends of the moraines resting on them.

"A stretch of perfectly level black sand, about half a mile in width, forms the head of the bay and intervenes between the glaciers and a promontory of rocky, rising land stretching out northward and westward, and forming the other side of the bay. It was on the smooth, sandy beach bounding this plain that we landed. The surf was not heavy, but we had to drag the boat up at once. In this we were assisted by six wild-looking sealers, who had made their appearance on the rocks as soon as the ship entered the bay, with their rifles in their hands, and had gazed on us with astonishment. The boss said, as we landed, he guessed we were out of our reckoning. They evidently thought no one could have come to Heard's Island on purpose who was not in the sealing business.

"The sandy plain stretches back from the bay as a dreary waste to another small curved beach at the head of another inlet of the sea. Behind this inlet is an irregular rocky mountain

mass, forming the end of the island, on which are two large glaciers, very steeply inclined, and one of them terminating in a sheer ice-fall. At its back this mountain mass is bounded by precipices, with their bases washed by the sea. The plain is traversed by several streams of glacier water coming from the southern glaciers. These streams are constantly changing their course as the beach and plain are washed about by the surf in heavy weather. * * * The sandy plain seemed entirely of glacial origin; it was in places covered with glacial mud, and was yielding, and heavy to walk upon. * * *

"The plain was strewed with bones of sea-elephant and sea-leopard, those of the former being most abundant. There were remains of thousands of skeletons, and I gathered a good many tusks of old males. The bones lay in curved lines, looking like tide lines, on either side of the plain above the beaches, marking the rookeries of old times and tracks of slaughter of the sealers. Some bones occurred far up on the plain, the elephants having in times of security made their lairs far from the water's edge. A few whales' vertebræ were also seen lying about.

"On the opposite side of the plain from that bounded by the glacier is a stretch of low bare rock, with a peculiar smooth and rounded but irregular surface. This rock surface appears from a distance as if glaciated, but on closer examination it is seen to show very distinct ripple marks and lines of flow, and the rock-mass is evidently a comparatively recent lava flow from a small broken-down crater which stands on the shore close by.

* * * "Sir J. D. Hooker, in his latest memoir on the botany of Kerguelen Land, says: 'The three small archipelagoes of Kerguelen Island (including the Heard Islands), Marion and Prince Edward's Islands, and the Crozets, are individually and collectively the most barren tracts on the globe, whether in their own latitude or in a higher one, except such as lie within the Antarctic Circle itself; for no land, even within the North Polar area, presents so impoverished a vegetation.'

* * * "The sealers said that the climate of Heard's Island was far more rigorous than that of Kerguelen Land. In winter the whole of the ground is frozen, and the streams are stopped, so that snow has to be melted in order to obtain water. In December, at midsummer, there is plenty of sunshiny weather, and Big Ben is often to be seen. It is possible to land in whale boats, on the average of the whole year only once in three days, so surf-beaten is the shore, so stormy the weather.

"We saw six sealers; two were Americans and two Portuguese from the Cape Verde Islands. They were left on the island by the whaling vessels which we met with at Kerguelen Land, their duty being to hunt sea-elephants. The men engage to remain three years on the island, and see the whale ships only for a short time in the spring of each year.

"On the more exposed side of the island there is an extensive beach called Long Beach. This is covered over with thousands of sea-elephants in the breeding season, but it is only accessible by land, and then only by crossing two glaciers or icebergs, as the sealers call them. No boat can live to land on this shore, consequently men are stationed on the beach, and live there in huts; and their duty is constantly to drive the elephants from this beach into the sea, which they do with whips made of the hide of the elephants themselves. The beasts thus ousted swim off, and often 'haul up,' as the term is, upon the accessible beaches elsewhere, and there they are killed and their blubber is taken to be boiled down.

"In very stormy weather, when they are driven into the sea, they are forced to betake themselves to the sheltered side of the island; hence the men find that stormy weather pays them best. Two or three old males, termed 'beach masters,' hold a beach to themselves and cover it with cows, but allow no other males to haul up. The males fight furiously, and one man told me that

he had seen an old male take up a younger one in his teeth and throw him over, lifting him in the air. The males show fight when whipped, and are with great difficulty driven into the sea. They are sometimes treated with horrible brutality. The females gave birth to their young soon after our arrival. The new born young are almost black, unlike the adults, which are of a light slate brown, and the young of the northern bladder-nose, which are white. They are suckled by the female for some time, and then left to themselves lying on the beach, where they seem to grow fat without further feeding. They are always allowed by the sealers thus to lie, in order to make more oil. This account was corroborated by all the sealers I met with. I do not understand it; propably the cows visit their young from time to time unobserved. I believe similar stories are told of the fattening on nothing of the young of northern seals.

"Peron says that both parent elephant seals stay with the young without feeding at all, until the young are six or seven weeks old, and that then the old ones conduct the young to the water and keep them carefully in their company. The rapid increase in weight is in accordance with Peron's account.

"Charles Goodrich gives a somewhat different account, namely, that after the females leave their young the old males and young proceed inland, as far as two miles sometimes, and stop without food for more than a month, and during this time lose fat. The male elephants come on shore on the Crozets for the breeding season about the middle of August, the females a little later.

"There are said to be forty men in all upon Heard's Island. Men occasionally get lost upon the glaciers. Sometimes a man gets desperate from being in so miserable a place, and one of the crew of a whaler that we met at Kerguelen Land said, after he had had some rum, that occasionally men had to be shot; a statement which may be true or false, but which expresses at all events the feeling of the men on the matter.

"The men that we saw seemed contented with their lot. The 'boss' said, in answer to our inquiries, that he had only one fur-seal skin, which he would sell if he was paid for it, but he guessed he'd sell it anyhow when he got back to the States. He had been engaged in sealing about the island since 1854, having landed with the first sealing party which visited the island. For his present engagement his time was up next year, but he guessed he'd stay two years more. He'd make $500 or so before he went home, but would probably spend half of that when he touched at Cape of Good Hope on the way.

"The men had good clothing, and did not look particularly dirty. They lived in wooden huts, or rather under roofs built over holes in the ground, thus reverting to the condition of the ancient British. Around their huts were oil casks and tanks, and a hand-barrow for wheeling blubber about. There were also casks marked molasses, flour, and coal. The men said they had as much biscuit as they wanted, and also beans and pork, and a little molasses and flour. Their principal food was penguins, and they used penguin skins with the fat for fuel. Capt. Sir G. S. Nares saw five such skins piled on the fire one after the other in one of the huts." *

THE AUCKLANDS, BOUNTY ISLES, ANTIPODES, AND STEWART'S ISLAND.

About the year 1800 Vancouver reported that fur-seals could be found in abundance on the southwest coast of Australia. It was not long before vessels started in search of them. The brig Union, of New York, Captain Pendleton, went there in 1802, but being unsuccesful in finding seals

* Notes by a naturalist on the Challenger, being an account of various observations made during the voyage of H. M. S. Challenger around the world, in the years 1872–1876, under the command of Capt. Sir G. S. Nares, R. N., K. C. B., F. R. S., and Capt. F. T. Thompson, R. N., by H. N. Moseley, M. A., F. R. S., Fellow of Exeter College, &c., with a map, two colored plates, and numerous wood-cuts. London: MacMillan & Co., 1879. 8 vo., pp. i–xvi, 1–620.

abundant the vessel proceeded to Border's Island, where some 14,000 skins were taken and sold at Sydney. In a further search for seals the Union visited the Antipodes and left a crew of men there to take seals and await the return of the vessel, but she was lost on a southern cruise and the men on the island were rescued by an English vessel. They had taken some 60,000 skins, which were carried to China by a vessel chartered at Sydney. (See p. 446.)

"Auckland's Group" says Captain Morrell, "as it is called in the charts, is a cluster of islands, only one of which is large enough to deserve the name, and that is 25 miles in length from north to south, and 15 in width from east to west. It is situated about 250 miles south of New Zealand, and as many leagues southeast of Van Dieman's Land, being in the South Pacific Ocean, in lattitude 51° south, longitude 166° 20′ east. It was discovered with its surrounding islets by Capt. A. Bristow, in 1806. It is moderately elevated, the highest points being about 1,500 feet above the level of the sea.

* * * "In the year 1823 Capt. Robert Johnson, in the schooner Henry, of New York, took from this island (Auckland) and the surrounding islets about 13,000 of as good fur-seal skins as were ever brought to the New York market. He was then in the employment of Messrs. Byers, Rogers, McIntyre & Nixon, who fitted him out on his second voyage in the Henry, in the most complete and liberal manner, in the year 1824. From this voyage he never returned. He was last seen at the south cape of New Zealand in the following year, having lost three men, who were drowned at Chatham Island. Captain Johnson and the remainder of his crew were then in good health, and had 1,700 hundred prime fur-seal skins on board the Henry. My informants further stated that the Henry left New Zealand on a cruise to the south and east in search of new lands between the sixtieth and sixty-fifth degree of south latitude, and as he had never been heard of since leaving New Zealand it is very probable that he made discovery of some new islands near the parallel of sixty, on which the Henry was shipwrecked.

"Although the Auckland Isles once abounded with numerous herds of fur and hair seal, the American and English seamen engaged in this business have made such clean work of it as scarcely to leave a breed; at all events, there was not one fur-seal to be found on the 4th of January, 1830. We therefore got under way on the morning of Tuesday, the 5th, at 6 o'clock, and steered for another cluster of islands, or rather rocks, called 'The Snares,' 180 miles north of Auckland's group, and about 60 miles south of New Zealand.

"This cluster of craggy rocks is in latitude 48° 4′ south, longitude 166° 18′ east; extending 5 miles in the direction of east-northeast and west-southwest. They were first discovered by Vancouver, who gave them a name expressive of their character as being very likely to draw the unwary mariner into alarming difficulties. We searched them in vain for fur-seal, with which they formerly abounded. The population was extinct, cut off root and branch by the sealers of Van Diemen's Land, Sydney, &c."*

The Bounty Isles were discovered by Lieut. William Bligh, in the English vessel Bounty, September 19, 1788, in latitude 47° 44′ south, and longitude 179° 7′ east. They are thirteen in number; are 145 leagues east of the Traps, which are near the south end of New Zealand. Capt. George F. Athearn states that no seal skins have been taken from these islands in recent years. Captain Biscor, in the brig Tula, in 1832, visited them for the purpose of taking seals, but it is said with very indifferent success. Lieutenant Bligh describes these isles as of small extent being only 3½ miles from east to west, and about half a league from north to south. Their number, including the smaller ones, is thirteen. The most western of the isles is the largest. They are sufficiently

* Morrell's Voyages, p. 363.

elevated in some parts to be seen from a vessel's deck at a distance of 21 miles. They cannot afford any kind of vegetable production. A few birds and seals are all these desolate rocks can support.

The Antipodes is a small group of uninhabited isles southeast of New Zealand, and are so called from being nearly opposite to Great Britain. Their latitude is 49° 42′ south, and longitude 178° 43′ east. Besides the 60,000 fur-seal skins taken at these islands in about 1804 by a crew of the American brig Union, it is probable that many other cargoes of which we have no record were also obtained here.

Stewart's Island, just south of New Zealand, Chatham Island to the east, Campbell's Island southeast of the Aucklands, and the Royal Company's Island in the same latitude as the Aucklands, but farther west, have all been visited by vessels in search of fur-seals and from them more or less skins have been secured.

3. SEALING VESSELS AND CREWS.

SEALING VESSELS AND THEIR OUTFIT.—The Antarctic seal fishery is an exceedingly dangerous pursuit, and requires vessels of strong build and thoroughly equipped with heavy anchors and chains and necessary apparatus for battling with storms and ice. They are frequently employed in whaling as well as sealing, so that in addition to the equipment for sealing they are provided with try-works and whaling implements.

A typical sealing vessel of the present day is a schooner of from 60 to 150 tons, well coppered and thoroughly caulked. The spars are shorter and stouter than those of an ordinary fishing schooner, and the rigging and sails are of the strongest materials. The outfit consists of from three to five 28-foot boats, camps and equipage for the location of men on seal islands, clubs, guns, ammunition, lances, knives, two suits of sails, extra clothing for the crew, supplies of salt for preserving the skins and provisions for one or two years. The salt is either taken from the home port or obtained at Cape Verde Islands, and is stowed either in casks or bins. It must be of moderate fineness, for if too coarse it will not sufficiently cover the fleshy part of the skins. Neither Liverpool nor Turk's Island salt have been found suitable for preserving seal skins. In small vessels it is customary to carry the salt in bins, which are afterwards used for packing a portion of the skins, while the remainder of the skins are stowed in casks. There are usually two salt-bins, one on each side of the hold, of a total capacity of 500 to 600 bushels. Large vessels take their salt and pack their skins in casks. About 300 bushels of salt are needed to preserve 5,000 skins. In the hair-seal fishery, on the coast of Newfoundland, the vessel's hold is "pounded off" into bins only a little larger than the skins, which are spread out flat and plentifully sprinkled with salt.

The provisions consist of barrels of beef, pork, bread, and vegetables, canned goods and cabin stores enough for about two years. The ground-tier of casks is filled at home with a three months' supply of water and refilled as opportunity affords.

Boats employed in this fishery are about the same as the ordinary 28-foot whale-boat. They are made a little stouter and more burdensome than the whale-boat, but of the same general style, and are used in transporting men, skins, and apparatus between the vessel and shore.

The outfit for a sea-elephant voyage is the same as for fur-sealing, with the addition of extra casks for the oil. These vessels, however, carry no salt unless they expect to find fur-seals on their voyage.

In the early days of the fur-seal and sea-elephant fisheries, many of the vessels were of large size, sometimes ships of 300 tons, and accompained by small schooners or sloops that served as tenders. This custom is still practiced in the sea-elephant fishery, but in fur sealing the scarcity

of seals has led to the employment of ordinary schooners. It was formerly customary for materials to be taken by the larger craft for the construction of small vessels of 20 or 30 tons, which were built at the islands and employed in cruising along shore, and men were landed at suitable points for the capture of seals.

At Heard's Island, in the sea-elephant fishery, the ships were securely anchored in the harbors and partially unrigged, and a few men left aboard as ship-keepers. The balance of the crew, and the furnaces, try-pots, and sealing implements, also casks for the oil, and camp equipage, were transferred to the tenders that landed men and apparatus at convenient points. The tenders then anchored until a supply of oil was secured, or continued cruising about transferring gangs of men from one point to another or searching off shore for whales.

Several of the sealing schooners were formerly regular-fishing vessels. Among vessels of this class were the Charles Shearer, Thomas Hunt, and Florence, which were bought from Gloucester, where they had been employed in the cod and mackerel fisheries. The Florence was refitted at New London, Conn., in 1872, and sailed for the Cape Horn region, where, after a series of hardships, she finally succeeded in securing a very valuable cargo of skins and returned home in 1876. She sailed again the same year, and arrived home April 6, 1877, when she was sold to take part in Captain Howgate's Arctic Expedition to Cumberland Inlet. The Charles Shearer was refitted as a sealing schooner in 1874, and sailed for Cape Horn and South Shetlands. She arrived home in 1875, having taken 1,600 fur-seal skins, worth about $16,000. On this voyage she lost her entire ground tackling on two occassions near Cape Horn. This vessel sailed on a second voyage in 1875 and returned in 1876 with 2,700 skins, worth $16,000. Five men were lost by drowning and two were massacred by Indians. The vessel was with difficulty saved from capture. In 1876 the Charles Shearer sailed again, and returned in 1877 with 400 seal skins and 50 barrels of sea-elephant oil. She sailed on her last voyage in 1877 and never returned. She was valued, with outfit, at $16,000, and carried 22 men. In July she left Stonington, and in October left a sealing crew of seven men, under charge of the second mate, on the island of Diego Ramirez, with camp equipage, apparatus, and provisions for sealing. The vessel took her departure for the South Shetlands, but was never heard from. In 1878 the United States Government sent a vessel in search of her, but she could not be found. In 1879 the schooners Express and Thomas Hunt were at South Shetlands, but found no trace of the Charles Shearer. The men left on Diego Ramirez were taken off in March, 1879, by the ship Jabez Howes, jr., and landed at San Francisco. They had secured 800 skins, that were brought to Stonington by the Thomas Hunt.

The schooner Thomas Hunt was brought from Gloucester in 1872 and fitted for sealing at Stonington, Conn. This vessel has made several successful voyages and is still employed in sealing about Cape Horn. Another sealing vessel, formerly a Gloucester fishing schooner, was the Flying Fish. This vessel sailed from New London, Conn., in 1870, and after making several sealing voyages, on some of them as tender to the bark Trinity, was abandoned off Cape Horn in 1878. Since the year 1870 two ships, two barks, one brig, and nineteen schooners have been engaged in the fur-seal and sea-elephant fisheries. One of the barks was withdrawn from the business in 1874; the other was lost in 1881. The ship Roman was refitted for whaling in 1876, and the other ship, the Nile, is "hauled up to die" at New London. The brig is still employed in the fishery.

The bark Trinity sailed from New London, Conn., on June 1, 1880, on a sea-elephant voyage to Desolation and Heard's Islands. Up to November, 1881, no news had been received from her, and as she was expected home in the spring of 1880 it was feared that the vessel had been wrecked at Heard's Island, though perhaps the crew might survive. Accordingly, the United States steamer

Marion was ordered to visit the island. The Trinity was found to have been wrecked, but the crew, with two exceptions, were alive and in good health. They returned home to New London in the spring of 1882.

THE CREWS OF SEALING VESSELS; SETTLEMENT OF A VOYAGE.—The number of men required to man the vessels varies from twenty-four to thirty-five according to the number of boats taken. Most of the crew are shipped at the home ports, but a limited number of green hands are taken at Cape Verde Islands, the natives of this place being adepts at both whaling and sealing.

In the fitting out of the vessel the owners furnish all the apparatus and everything needed for the voyage, charging advances in cash or clothing to the officers and crew, awaiting the result of the cruise for payment. All the crew receive shares in the net proceeds after deducting advances, interest, and insurance, and extra expenses incurred on the voyage.

The proportionate shares vary on different vessels according to the number and experience of the men in sealing. At times a superior master gains a percentage above his share and the crew sometimes receive deserving shares besides their regular allowance. The captain is usually allowed from one-eleventh to one-fifteenth of the net proceeds, first mate one-twentieth to one-thirtieth, second mate one-thirtieth to one-fiftieth, third mate one-fortieth to one-sixty-fifth, sealers one-eightieth to one one-hundred-and-twenty-fifth, and green hands one one-hundred-and-seventy-fifth to one two-hundredth.

The following statement shows the method of settling a voyage at one of the New England sealing ports:

Account of settlement of an Antarctic fur-seal voyage.

One thousand four hundred fur-seal skins sold in London		$32,091 89
Less packing, freight, and insurance	$583 74	
Commission on sales	830 90	
Cartage in New York and traveling expenses	77 25	
		1,491 89
Net proceeds		30,600 00

Crew's share.

One-fifteenth net proceeds	$2,040 00
One-twentieth net proceeds	1,530 00
One-thirty-fifth net proceeds	874 28
One-fifty-fifth net proceeds	556 36
One-sixtieth net proceeds	510 50
One-seventy-fifth net proceeds	408 00
One one-hundredth net proceeds	306 00
One one-hundred-and-fortieth net proceeds	218 57
Twenty one-hundred-and-eighty-fifths net proceeds (twenty men at $165.40)	3,308 00
	9,751 71

DR. *Peter McEuen in account with schooner ——— and owners.* CR.

To paid advances, board, clothing, and cash	$58 50	By $\frac{1}{150}$ pay in net proceeds, sale of cargo	$165 40
To schooner's bills on voyage	15 15		
To interest and insurance on advance	11 08		
To pay, day's fitting, and discharge	15 00		
To cash to balance	65 07		
	165 40		165 40

Received ———, of ——— ———, managing owner, sixty-five and $\frac{7}{100}$ dollars, in full of all demands against schooner ———, her owners, officers, and agent, of whatsoever nature, in above voyage.

(Signed) ——— ———.

4. METHODS OF CAPTURE AND OF TAKING THE SKINS AND OIL.

THE FUR-SEAL HUNT.

Fur-seals, according to their sex and age, are known to the sealers as wigs, or adult males; bulls, or those not quite as old; clapmatches, or adult females; yearlings, or the half grown of both sexes; gray or silver pups, which are the young of nearly a year old; and the black pups, or the very young before their coats are changed to gray.

In size there is a great difference between the male and female, the former, when full grown, being about 7 feet in length, while the latter never exceeds 4 feet. The large males are not the most numerous, but are very powerful.

Having reached the seal islands measures are at once taken to effect a landing and search for the animals. This is often the most difficult part of the sealer's work. It may be several weeks before it is possible to get ashore, so dangerous is the boiling surf. Having at last made a landing the men proceed to erect rude huts or set up their tents, in which to pass perhaps months before the vessel shall return to take them off. At the island of Diego Ramirez, off Cape Horn, the vessels usually land two boat crews, with salt and tents and provisions for two months, during which time the men are expected to take and salt as many skins as possible, to be ready when their schooner returns, which may be at the appointed time or they may be left for an entire year, misfortune having overtaken their comrades. At Staten Land, also off Cape Horn, the custom is for vessels to anchor in harbors on the north side of the island, and the men in boats go round to the south side and gather the skins, hauling their boats upon the beach and using them as shelter at night. Each man takes with him a water-tight bag of provisions. In a few days they will return to their vessel with the skins they have taken, and after receiving a fresh supply of provisions return to the shore for more seals.

In the South Shetland seal fishery the vessels are anchored in the safest harbors, and crews sent out in boats to cruise along the shores and to capture seals wherever they can be found.

The common implement of capture is an oak or hickory club about 5 feet long, with which the animal is stunned, and if need be is stabbed with the sealing knife. At the present day the animals have become so scarce and shy at the once favorite resorts that the hunter often has to watch and wait for them singly, and it is frequently difficult to approach near enough to dispatch them with the club, so that a rifle must be used. Where new rookeries are found the seals are quite tame and are easily approached and clubbed. The rifle is never used unless absolutely necessary, for it makes holes in the skin that greatly reduce their value.

"In former times," says Scammon, "when fur-seals abounded, they were captured in large numbers by the ordinary seal-club in the hands of the sealer, who would slay the animals right and left by one or two blows upon the head. A large party would cautiously land to leeward of the rookery, if possible; then, when in readiness, at a given signal all hands would approach them shouting and using their clubs to the best advantage in the conflict. Many hundreds were frequently taken in one of these 'knock-downs,' as they were called. As soon as the killing was over the flaying commenced. Some sealers became great experts in skinning the animals, and the number of skins one would take off in the course of an hour would be a decidedly fishy story to tell. However, to flay fifty seals in a day would be regarded as good work. It will readily be seen that a sealing-ship's crew, numbering twenty or more, would make great havoc among a seal rookery in very short time, and it is no matter of surprise that these valuable fur-bearing animals soon became comparatively scarce." *

*Marine Mammalia, p. 153.

As soon as possible after the animal is killed it is skinned. This work is done on shore, and the method now employed in stripping the seal is to make a cut with a sharp knife through the skin around the throat just above the ears, leaving those appendages on the pelt, then down the chest and belly to the extreme lower part, then cut around the flippers. The skin is now cut free from the body and is prepared for salting or drying, while the carcass is left on the rocks to be devoured by birds.

Prior to 1815, about the only market for the sale of the skins was China, where they were exchanged for tea and other commodities. They were mostly dressed in the same manner as hair seal, for the hide. The fur was cut off clean and thrown away as useless, and the hides were used in the manufacture of trunks, valises, &c.

From 1820 to 1840 the fur-seal skin was taken from the animal in the same manner as a calf or sheep is skinned, leaving the pelt with about one-fourth of an inch of blubber still adhering to it. Since 1840 they have been skinned so as to leave nearly all the blubber on, but when deposited at camp or on board the vessel they are placed upon a board about 16 inches wide, or upon an empty barrel, and beamed by cutting all the blubber from the pelt. They are then washed or soaked from blood and dirt, and are pressed for a day or two by putting in piles, thus removing the water. They are then freely salted and tied up in bundles in book form; sometimes booked snug with salt and tied; sometimes loosely booked and put in bins or packed; and sometimes packed in kench after having been resalted, skins to fur, with salt between, in casks. After this has been done they will require resalting within four months and looking after before passing the warm latitude. Slack salting and want of proper care will bring ruin to the fur or pelt by heating and causing the fur to come out wherever the skin is not completely cured or salted. It is not considered safe, even after a pelt is no longer capable of absorbing salt, to have them packed in piles *for over four months without overhauling, as they are liable to become heated.*

The skins were invariably dried before the year 1815, since which time they have always been salted, except in exceptional cases, when a few have been taken by natives, or where the stock of salt on the vessel has been exhausted. The proportion dried under these circumstances would not be more than 1 per cent. of the number of skins brought to market.

Sealers now beam down close and clean. At the same time if one-fourth of an inch of meat is left on the pelt it is safer, for the meat takes the salt better than the pelt, and the skin is thus "cured to greater safety."

The skins are ready to pass into the hold of the vessel as soon as washed and drained of water, when they may be salted and packed, as before described.

CAPTAIN ATHEARN'S ACCOUNT OF FUR-SEAL HUNTING.

The following letter of advice was written a few years ago by Capt. George F. Athearn, of West Tisbury, Mass., to Capt. Thomas Warren, who was about to start on a fur-seal voyage to the Bounty Rocks.

Through the kindness of Captain Athearn we are permitted to publish this letter which contains very valuable information concerning the habits of the Antarctic fur-seal, the methods employed for its capture, and the care of the skins:

"I will now write what I should do if I was going on a sealing voyage such as you are now about to start on. First, I should use every reasonable means of making the best of my way to the seal islands. I have always found it best to be on hand and in season, so as to have some leeway for bad weather. The great trouble in working fur-seal islands and rocks is in landing the salt and provisions. There is not much trouble in taking off skins, for they can be taken off with ease when you could not land a thing.

"HABITS OF THE SEALS.—Now I will state the habits of the fur-seals of Cape Horn: About the first of November the old wigs (which are the old male seals) come on shore to form the rookeries for the pupping season which is soon to follow. When the old wigs come on shore all the clapmatches (or female seals) that reared pups in the year past are still on the rookeries with their young, which are now yearlings, and prime skins. The old wigs when they arrive make it their business to drive all the yearlings off the rocks, and as soon as they accomplish this the clapmatches leave and take to the water, leaving the rocks in charge of the old and young wigs.

"About the 25th of November the young clapmatches of four or five years, that are to have their first pups, come on shore, and I have seen a pup as early as the 20th of November, but the main herd of the old clapmatches do not begin to haul in any great number before the 5th of December, and from that to the 25th of December they come in fast. I don't think it is a good plan to commence killing until they get well into pupping. Don't kill any of the old wigs until you have worked off most of the clapmatches, or near the end of the pupping season, as they hold the other seals and will not let them go off the rocks if they can prevent it. If you should want all the seals that are on the rocks to make up your cargo, you can all through the pupping season be working off the young wigs, which are always hauled in small rookeries near the pupping seal, driven there by the old wigs.

"Great care should be taken, if the men are landed when the wigs begin to haul, to make as little show as possible for a few days, until they get well settled, and when the wind blows from the house direct to the rookeries it is best at that season to make as little smoke as possible, for the seals have a scent equal to any dog.

"You will bear in mind that the full grown clapmatches, or young wigs that are larger, are the most valuable. The next in value are the two and three year old seals, that haul at different times on the rocks. The yearlings that are driven off in November are prime skins, and taking into account how much less work it is to skin them, and how much less salt, and room they take, they are worth striving for. The large old wigs are of the least value, taking more work, salt, and room. Still they are better than nothing.

"You must try and get to the island in time to get all of last years pups with the clapmatches. If you can get there thus early it will give you a great start and make everything smooth for you; but if you cannot get there in time to take the young seal season, get there as soon as possible, and be sure that you examine the islands and rocks thoroughly.

"What I have written about the habits of the fur-seal applies to the region of Cape Horn. It may be possible that where you are going their habits may be different, for at the South Shetlands there are no seal on shore from March to the middle of November. Also at South Georgia, with a lower latitude than Cape Horn, the seal, after shedding the last of February, take to the water and do not return till the following November. If they should work the same where you are going you see that if you arrive there in September, or up to the middle of October, there may be very few if any seal hauled, so of course you will have to land and examine the rocks, and it will be easy for you to tell if there has been any number of seal in the habit of hauling there, although the frequent rains of that latitude will wash away much of the evidence of the past season, so you will have to use your own judgment. Don't condemn in haste. Make sure you are right.

"THE SEAL HUNT.—If you get to the islands early in the season, and find the seals hauled in such numbers that you think there is a good chance to use up all your salt and more besides, I will tell you what I should do. Land all the men that could work to advantage, with the best man I had to head them, with provisions to last all the season, and all the salt except enough to resalt what skins they could take in the time that I could wait and still have time to get back

with the salt in time for the pupping season. You know when the pupping season comes on, and can calculate the time it will take you, but be sure and make plenty of allowance for bad weather.

"I should first go to Port Chalmers. I have been informed that a vessel leaves there for England once a month. If such is the case it would be the best place for many reasons for you to go to ship your skins and get salt. First, it is so near your work that there will be plenty of time for you to write the owners so they can get the skins insured here or in England.

"If I got out there early and saw a great show of seals, I should get as many on board as I could without running any risk of not getting back in time. I would leave on the rocks all the men that I thought would blab; go to the most convenient port, ship my skins, get what I needed and go back to the rocks, and finish up the season and go to Valparaiso without touching at New Zealand, and I should expect to have another season without company.

"You will remember that you cannot get all the seal from a rookery in one season. If you get 3,000 the first season you may expect to get 1,000 or more the next, and in the same proportion for a large or smaller number. If I went to Valparaiso I should write the agent in London, which the owners had directed me to ship to on their account, one steamer before I sent the skins, so that they could insure them, and then I should write them that I had shipped so many prime skins, all in good order, taken in a high southern latitude, of course not mentioning the place. They class skins differently from what we do, calling clapmatches 'middlings', three-year old seal 'large pups', two years old 'smalls', and yearlings 'small pups', which is all set forth in their catalogue, one of which I will furnish you for future use.

"I have been in the habit of landing a boat with the men if there was any outstanding rocks with seal on them, so that the men in good weather could go and work them off. I think you will find on the Bounty Rocks seal on more than one of them; also, you will find the Western Rock the largest, as in most cases the groups of small islands and rocks in high southern latitudes are found so. If the weather rocks have the best show of seals of course you will land your men on them, and if the smaller rocks to leeward have any seal, they will be more easy to work by boats in good weather, from being somewhat protected by the rocks to the westward. I think dories will be the best boats to use at the Bounties, they are so easy to launch or haul up. I shall favor your having at least two dories, but the men must be careful to haul them high up above any marks of the sea, and turn and lash them in the most sheltered place or they will lose them.

"Be sure and warn the men to pitch their tents in as high and sheltered a place as possible; also to store the salt, and salt the skins higher up than seems really necessary. I make these remarks because I once worked a rock two seasons. The first season we stored the salt and salted the skins in a cave high up, and, as we thought, safe from the sea. All through that season the weather was as bad as we had in any season, but no sea came near the place. In the short time that the men were away there came a sea just right to wash over that part of the rock, and washed the cave out clean, loose rocks and all, so we took the hint the next season and salted higher up.

"I should make and have on hand, besides the tent coverings, a good lot of tarpaulins, large enough to make a tent for two or three men and their traps. They will never come amiss, for they are handy to cover up salt and skins on the rocks. I think you will find it necessary at the Bounties to land two or three men at a time on the outlying rocks to work them off. Great care should be taken in approaching an unknown island or group of rocks. During a strong wind and extra heavy swell is a good time to go for them. In such a time, by keeping a good lookout the hidden dangers will be very apt to be seen.

"After having men landed through several spells of bad weather from different quarters, if they are at all observing they will see and take the bearings of all the shoal places, and by so doing they will make it easier for the vessel to work afterward.

"FOOD FOR SEALERS.—I will advise you, as a very necessary thing, to see that your men, at least those who are landed, eat plenty of seal meat, for it is necessary for their health. There is no danger of any man getting the scurvy if he will use seal meat freely, and as soon as they have used it a few days they will use no other meat, for it is first-class, and the pups that are three or four months old are as good as any pig. Take and clean a young seal, cut off all the fat, stuff and roast it as you would a pig, and you have a delicious dish. You may think this needless advice, but I will give you my reasons for it.

"I was working seal in Terra del Fuego for forty months, without coming away from there, three winters and four summers, and by using plenty of seal meat, as I claim, I preserved the health of my crew, for I did not have a sick man during the entire time.

"The first three seasons no other vessel accompanied us; the fourth season there were several other vessels. They landed their men and every one of them lost men by scurvy, and even the crews of the vessels were taken down by it, and this all in one season. One schooner came and anchored in the same place with me. When I went on board the captain told me that he had lost three out of six men that he had landed, and that he had one on board so bad that he could live but a short time, as he was unable to move. I asked him if his men used seal meat. He said he had told them to use it but they thought the meat was not good and would not use it. I told him I had the same trouble with my men during the first part of the voyage, and had to make the men eat it. The last three seasons they would not use any other meat. If one of your men should get the scurvy give him raw seal meat soaked in vinegar.

"October is the laying season in high southern latitudes. If you get there by that time you will be able to get any quantity of eggs of different kinds. There are some kinds of penguin that are almost always found on or near seal rocks. By clearing off the rookeries and collecting the eggs as soon as laid these penguins can be kept laying up to February. All the different kinds of young birds are good eating.

"CARE OF THE SKINS.—You will have men with you that have been in the business before. Still I will write you how to take care of skins. The way to skin a seal is to cut around the flippers; then rip the belly open from tail to throat; then cut around the head forward of the ears, leaving the ears on the skin. Take the blubber off with the skin. Be sure and soak the blood well out, for on this depends in great measure the curing of the skin. After being well soaked pile them in small heaps to drain. Then flinch them by cutting the blubber smoothly off, leaving from one-eighth to one-fourth inch of blubber on the skin. Be sure to caution the men to hold their knives flat in flinching if they will cut down to and into the skin in steps the whole length. A skin so flinched, although there may be no holes clean through it, will go 'damaged in dressing,' and of course they will make a damaged skin of it. Every defect will be seen in London.

"A flinching-board should be about 6 feet long and from 1½ to 2 feet wide, with legs long enough for a man to work without bending too much. The legs can be made to unship, so as to save room. Brace up the board the right slant, take the skin by the neck, swing it over the board with the flipper holes on the board, draw the knife across the blubber where it hangs straight on the board, and cut it off smoothly to the tail, leaving the tail on the skin. Then turn the skin around and flinch the neck. In salting care should be taken to rub the salt well into the edges and the neck of the skin, for in kenching or booking them up the edges are very apt to roll up and if not well rubbed with salt will get pink and damaged.

"I think the best way to salt skins on the rocks is to build up a place with rocks high enough to let the rain water run under them. Take the largest skins and form a circle with the tails in the center, each skin laid down blubber side up. After rubbing well with salt and leaving enough on to cure it, which will depend, of course, on the size and thickness of the skin, take and fold in the sides far enough to take in the flipper holes. Then fold over the neck far enough so that it will not turn back. By so doing the outer edges of the circle will be kept the highest and will keep in all the pickle. If the edges get too high the small skins can be salted spread out flat in the center.

"When taken on board the vessel the skins should be examined, and if there are any places that are clear of salt and feel soft and look pinky, and a little thicker than the rest of the skin, care should be taken to rub salt well into those parts. On board the vessel they can be salted anywhere that there is room to form a kench clear of water underneath, or they can be booked up and stowed away.

"To book a skin, fold the sides just as in kenching, then fold neck and tail in until they meet equal, and then fold again. A large skin would have to be folded more times than a small one.

"There are a few things that are handy for the men to have on the rocks, such as a small hook like a cotton hook, for each man; also a hook or two for each rock, like a chain-hook, only shorter, shanked with an eye large enough to bend a rope in. These are very useful to haul seal out of caves, gulches, and cracks in the rocks. Almost always in killing a large number of seals at one time a good many will tumble down in gulches in heaps. These should be hauled out as soon as possible and laid separate on the rocks so as not to heat. If there are a great many and the day is warm it would be well to rip them open and let the heat out.

"In resalting skins for shipment I just cover the lower head of the cask with salt, book up the skins, stow in a course as tight as possible, stamp them down, sprinkle salt on them, and so on with successive layers until the cask is full."

FUR-SEAL HUNTING IN 1797.

In the unpublished diary of Eben Townsend, before alluded to, we find the following interesting account of the manner of taking the fur-seals and the care of their skins in the early days of the fishery.

Under date of States Harbor, Falkland Islands, December 25, 1797, Mr. Townsend says:

"In the middle of winter we left James Ellis on one of the islands to take care of skins. He carelessly got out of fire, and was without it fifteen days. The principal inconvenience was that he could not cook, was obliged to eat his limpets and pork raw. He did not suffer from the cold. The fuel used by a sealing crew among these islands is the blubber or fat of the seal. This makes the men nearly as black as negroes. They cook the haslet with the fat of the seal both for fuel and fat, and it tastes very much like a hog's haslet. A sealing crew want a good stock of bread, molasses, and peas for coffee, and they can get along with little beef and pork, but to be out of bread or molasses for sweetening their coffee is very uncomfortable. They get very much attached to what they call slops, which is tea and coffee, in this cold uncheerful country. We now have on board about 30,000 fur-seal skins, which we have got by great exertion. I believe every island where there was any prospect for seals has been thoroughly examined. We calculated on getting our cargo at these islands and are much disappointed at not having any more. There are some few hair-seals and sea-elephants among these islands, but they are now pretty well cleared of everything but birds and hogs.

"The fur-seal which we take have been by travelers distinguished by the name of sea-dogs and the ursine seal. We call the male 'old wigs' and the female 'clapmatches.' The hair-seal males are called sea-lions and the females 'clapmatches' also. The young seals are called 'pups' until they are old enough to be called yearlings. The hair-seals and the fur-seals never associate. The former always take a sandy beach and the latter always take a rocky one. They generally lay in rookeries of from three hundred to several thousand. We take them by getting between them and the water, and being frightened they huddle together when they are easily killed by a blow over the nose with a walnut stick about 3 feet long. They sometimes break through for the water and it is almost impossible to stop them. The old wigs take the lead and the others follow like sheep. They are sometimes on very high ground, but they will go off a precipice 50 feet, falling on their breast without apparent injury. Two or three years ago a man was knocked off by them from a high rock and dashed to pieces. They are not dangerous if a good lookout is kept, for they move slowly. Our men sometimes get bit by them, but it is through carelessness. After they are killed the next thing is to skin them. The blubber is generally taken off with the skin, as it is less labor than to skin close. The skins are then laid on a slab or tanner's beam, and the blubber all taken off very clean, close to the skin, with what the tanners call a beaming knife. After this they are all to be washed clean, the flipper holes sewed up, and carried to the pegging ground, which is frequently a considerable distance, and sometimes on another island. The pegging ground must be good clean ground, where it is clean and free enough from stones or rocks to get the pegs down easily with the hand. They are pegged out with ten pegs each, and one good long clear summer day will make them fit to come out of the pegs, but in this country we frequently leave them down a week, and sometimes three weeks. After they are out of the pegs, they are to be stacked and allowed to sweat a little, and in this way they are to be spread and stacked several times before they are sufficiently cured to take on board the ship. During the whole time they are in the pegs we are trimming them where they may curl so as not to receive the sun, and scraping them with our knives to remove whatever blubber may be left on them. While aboard ship they must be frequently shifted and beat to keep the worms out. The skins taken in the winter must be salted and freshened in the spring. This requires considerable labor, as they must be carried on board the ship to be salted, and then taken ashore to be dried. From West Point we had to carry the skins about 4 miles to the pegging ground, but it was by water. They were then carried up hill on our backs. There is a great deal of labor in getting a cargo of skins, but we would not mind that if we could find them. The seal produce young yearly, generally two pups; those among the islands appear to lay on the rocks most of the time. During the last two spring months they are off the rocks most of the time, probably to wean their pups, as the pups remain on the rocks. They remain off till near the pupping time again, which is early in the summer. The old wigs are very much scarred from their battles for the females. * * * Our shoes were not expensive here, as we generally wore moccasins. Taking a green seal skin, we put a foot on it and cut around it, sew up the heel, and run a string round the toe, which draws it up, and tie it on the instep. By walking it becomes leathered and soft to the foot. Hats got to be a very scarce article. Some made seal skin hats. I did my own washing and ironing, and did it well. Perhaps you would have laughed to see me ironing, but we have no idlers and boys. Steward and all go sealing."

CAPTURE OF SEA-ELEPHANTS AND CARE OF THE OIL.

The bulls or full-aged male sea-elephants are enormous animals, varying from 12 to 24 feet in length and from 10 to 15 feet in circumference. The females are scarcely one-third the size.

Males alone have an elongated snout or proboscis, which has given this species of seals the name of sea-elephants. When the bulls first land they are very fat, some of them yielding about 4 barrels of oil, but after remaining on shore for months and abstaining from food they are very lean and emaciated, and yield scarcely more than 30 gallons.

"The teeth of sea-elephants," says Lanman, "are short and deeply rooted, the molars small and pointed, and the caverns very large, and the power of their jaws so great that an angry bull has been known to seize a dead comrade, weighing a ton, and toss him a considerable distance, as a dog would a mouse.

"When quite young they are called silver-gray pups, from their color, but as they mature they become brown, the males inclining to a dark blue, and the females to a yellow shade; their home is the sea, but they have a fashion of spending much of their time upon the shore, occasionally going inland 2 or 3 miles, and luxuriating in fresh-water marshes." *

The sea-elephants annually haul up in herds upon the sandy beaches of barren islands. Their habits are in many respects similiar to the fur-seal, and the periods spent on land are divided into the bull, pupping-cow, brown cow, bull and cow, and March bull seasons. In the early part of September the bulls approach the shore and are soon followed by the cows, when the pupping season begins. About the middle if December, the young being old enough to take the water, the whole breeding herd leaves the shore. By the 1st of January, the yearlings, accompanied by a few females, called brown cows, come on shore to renew their coats. In February the full-grown males and females do the same, and by the 1st of May all, both young and old, have disappeared.

This animal produces nothing of commercial importance but the oil. The hide is porous, like pig skin, and is not utilized except by the sealers for coverings to their huts. The sealers often use the meat for food. The season for taking the sea-elephant at Heard's Island commences about the middle of October. They are then quite numerous, and will not leave the beaches. When the season begins, casks and camp equipage are transferred from the larger vessel to the tender. The tender then cruises along shore and on favorable beaches, where the surf will permit their landings, boat crews of seven men each are set ashore, furnished with implements of capture. At a place near the shore try-works are set up and a hut built for the accomodation of the men. One set of try-works is usually enough for all the boat crews who bring the blubber to the rendezvous. The huts are often of the rudest sort, being made of stone and covered with sea-elephant hides. Sticks are taken for hut poles. At Desolation the blubber is taken off to the vessel to be tried out, but at Heard's Island this work is more frequently done on shore.

In the capture of sea-elephants it is the custom of the sealers to go in the midst of a herd of the animals as they lie sleeping upon the sandy shores, and with a stout oak club strike the young animals upon the head, stunning them so that they are easily killed by thrusting a lance in their side. The young ones are thus easily dispatched and the larger animals are generally docile and killed without difficulty with the lance, though the great bulls must be killed with a rifle. The sealer advancing in front of an animal to within a few paces, it will rise on the fore flippers and at the same time open the mouth widely to send forth a loud roar; this is the moment to discharge the ball through the roof of the upper jaw into the brains, whereupon the creature falls forward, either killed or so much stunned as to give the sealer sufficient time to complete the destruction with the lance.

Having killed as many as can be conveniently cared for at the time, the men proceed to skin the animals and take the blubber. For this work they use a ripping knife with 10-inch blade. The skin is first removed and then the blubber is stripped from the meat, in what are called "horse

* CHARLES LANMAN, in Forest and Stream, January 2, 1879.

pieces," that are usually from 1½ to 2 feet long, and about 15 inches wide; in thickness they vary from 1 to 4 inches, according to the fatness of the animal. The blubber is now strung upon back poles or piled in wheel-barrows and taken to a running stream, where the sand and blood are washed off, and the pieces cut into strips about 2 inches wide which can be dropped into the bung-hole of casks that have been rolled to the spot. If, after stripping the animals, the blubber cannot be immediately cared for, it is buried in the snow or sand beyond the reach of birds, which are continually hovering about, and which devour the carcasses of the slain seals.

When convenient, as at Heard's Island, it is customary to erect try-works near the shore or running stream, where the blubber can be turned into oil and made ready for transportation to the vessel. It is often a work of extreme difficulty to get the blubber to the try-works, for it is sometimes carried several miles over slippery icebergs and rocky shores.

To prepare the blubber for the try-pot the strips that are now about 2 feet long, and 1 to 2 inches in width, are partially cut through at intervals of about an inch, and these strings of small pieces are ready for boiling.

The blubber of the sea-elephant is harder to boil than whale blubber. From try-works of 100 gallons capacity about 900 gallons of oil can be turned out daily.

Scraps remaining in the try-works are passed through a press to extract any oil that may be left after the boiling process; after coming from the press the scraps are used for fuel.

If the blubber is tried out on shore it is often a difficult task to get the casks of oil off to the vessel. To prepare a cask for rafting the quarter hoops are lifted and some beckets put on and the hoops are then replaced. The casks, sometimes to the number of fifteen or twenty, are bent on to the raft line at some distance apart, so that they will not strike one another, and are thus pulled to the side of the tender, which is anchored near the shore. Sometimes the raft-line is over 300 fathoms long.

Frequently the blubber is tried out on board the vessel, in which case the horse pieces from the animal are transferred from the beach to the tender by means of a raft rope, which is about 3 fathoms long, with an eye splice in one end, to which pieces of blubber are made fast and taken to the edge of the surf. The end of the rope is thrown to a boat just outside the breakers, and the raft of blubber is towed to the tender or vessel. This rafting process is called by the sealers "rock hopping."

Captain Scammon gives some account of the manner of hunting the sea-elephant at Heard's and Desolation Islands. He says:

"When parties from different vessels are located on the same beach the custom is for all to work together when killing the animals, as well as when skinning and cutting the blubber from the bodies into 'horse pieces.' These are thrown into one or more piles, after which the men of each party are ranged in squads, and each one, in turn, draws a piece from the heap, until all is disposed of. These divisions are made whenever the animals are found and killed in any considerable numbers; and if far from the rendezvous the blubber is 'backed' or rolled in casks to the main depot. 'Backing' is the stringing of eight or ten pieces on a pole, which is carried on the shoulders of two men; but if a cask is used, three men are allotted to each one of six or eight barrel's capacity, to roll which the distance of 2 miles is allowed to be a day's work. * * *

"While the ship is away, homeward bound, or returning to Heard's Island for another cargo, the tender may be at Desolation Island, picking up what scattering elephants can be found upon shores that once swarmed with millions of those huge beasts; or a short whaling cruise is made, until the time comes for commencing operations at the island.

"Hunting for the scattering animals about the shores of Desolation Island, between seasons

is the most exposed and solitary pursuit either in the whale or seal fishery. The tender takes a detachment of the crew, and plies along the island coast, landing one or two men on each of the best beaches, with a supply of water and provisions; a tent or shanty is erected, partly of wood, partly of canvas; and the skins of the elephants furnish the floor, couch, and covering of the temporary habitation. Here the banished hunter or hunters rest at night after the fatigues of ranging along the shore, killing and flaying the animals met with, and transporting the blubber to a place of deposit, where it is buried, to prevent the gulls from devouring it, until taken aboard. As the season returns at Heard's Island, the vessels are usually 'on the ground'; the treacherous surf is again passed and repassed in the light, frail whale-boats, landing the fresh crew from home, who relieve those who have thus literally 'seen the elephant.' The time passes quickly away in the excitement of killing and flensing and again the floating fragment of the world departs for the land of civilization, leaving her last crew from home to pass an Antarctic winter amid the solitude of ice bergs and the snow-covered peaks of the mountain land. No passing sail is seen to break the monotony of their voluntary exile; even many varieties of sea-birds found at Desolation Island do not deign to visit them. Multitudes of penguins, however, periodically resort to the island, and their eggs, together with the tongues of the sea elephants, and one or two kinds of fish, furnish a welcome repast for all hands, by way of change from that substantial fare called 'salt-horse' and 'hard-tack.' Beside the close stoves in their apartments, which are heated with coal from the ship or the fat of the elephant pups, and the flickerings of a murky oil-lamp, the long winter evenings are passed in smoking and playing amusing games, 'old sledge' and 'seven up' being favorites, and the reckless joking that circulates among adventurers who make light of ill-luck and turn reverses into ridicule."*

The heavy surf about Heard's Island and the rocky shores make the place very dangerous to vessels, and many disasters have occurred there. Against the perpendicular cliffs at the north-westerly end of the island the schooner Frank was dashed to pieces. The crew was rescued by the noble efforts of one of their number, who with great difficulty climbed the rough cliffs and helped his comrades off. In 1860 the schooner Exile was driven ashore at Whisky Bay. The schooner R. B. Sawyer was lost at Stoney Beach, and the schooner Mary Powell was wrecked at a great flat iceberg south of Fairchild's Beach. On a reef of rocks near the long sandy point at the southerly end of the island the Alfred, of Fairhaven, and the R. B. Coleman were driven ashore and wrecked.

Capt. Alfred Turner was at Heard's Island in February, 1863, in the schooner Pacific. No other vessels were there at the time. Three men were left on board as ship-keepers while the crew were ashore hunting elephants. The anchor chains parted in a gale at night. The foresail was set but they could not succeed in getting the vessel off shore, so they drove her on a sandy beach, and in two hours she went to pieces. The men jumped in the surf and swam ashore. Some provisions drifted ashore, and these, added to what had been landed for the hunters, sufficed to keep the entire crew alive till the following October, when another sealing vessel came to the island and rescued them. During their residence there the men kept at work killing elephants and trying out the blubber, so that they managed to accummulate considerable oil.

The experience of the crew of the bark Trinity in 1881, mentioned on a preceding page, was similar that of the Pacific's crew.

* SCAMMON: Marine Mammalia, pp. 123, 113.

5. STATISTICAL REVIEW OF THE FISHERIES.

EXTENT OF THE FISHERIES IN 1880.—In 1880 the Antarctic sealing fleet numbered ten vessels, aggregating 1,277 tons, valued with outfits at $103,000. The crews numbered two hundred and seventy-two men. The products for the same year were 9,275 fur-seal skins, valued at $90,431, and 42,000 gallons of sea-elephant oil, valued at $21,420. The skins were mostly exported to London to be dyed. The oil was refined and used for illuminating purposes, and mixed with sperm oil for lubrication of machinery. The manner of dressing and dyeing the skins and the preparation of the oil will be discussed in another section of this report.

The total number of fur-seal skins taken by the Antarctic fleet from 1870 to 1880 was 92,756, and the quantity of sea-elephant oil brought home during the same period was 1,071,472 gallons. Earlier statistics of this fishery are given in the review at the beginning of this chapter, and also in the list of sealing voyages below.

The following tables show the total number and class of vessels in the Antarctic fleet during each year from 1840 to 1880, and also the number of vessels from the various New England ports during the same period. The number of individual vessels in the fleet from 1840 to 1880 was 76.

The number and class of Antarctic sealing vessels and their aggregate tonnage from 1840 to 1880.

Year.	Ships and barks.	Brigs.	Schooners.	Total number vessels.	Total tonnage.	Year.	Ships and barks.	Brigs.	Schooners.	Total number vessels.	Total tonnage.	Year.	Ships and barks.	Brigs.	Schooners.	Total number vessels.	Total tonnage.
1840		2		2	196	1854	8		8	16	3,495	1868	1		5	6	1,124
1841	2	2	3	7	1,194	1855	4		3	7	1,833	1869	1		4	5	964
1842	2	1	4	7	1,390	1856	6	1	3	10	2,035	1870	1		4	5	964
1843	4	1	4	9	1,765	1857	6	1	6	13	3,432	1871	2		6	8	1,463
1844	6	1	6	13	2,180	1858	9	1	8	18	4,527	1872	2		6	8	1,449
1845	3		9	12	1,532	1859	7	1	12	20	4,461	1873	2		10	12	1,766
1846	2		5	7	1,070	1860	5		6	11	2,600	1874	1		10	11	1,473
1847	3		5	8	1,411	1861	3		7	10	2,167	1875	1		11	12	1,573
1848	4		3	7	1,670	1862	1		5	6	1,230	1876	2		10	12	1,771
1849	4		2	6	1,733	1863	1		2	3	563	1877	1		10	11	1,422
1850	3		3	6	1,379	1864	1		2	3	652	1878	1		8	9	1,291
1851	4		3	7	1,767	1865	2		3	5	1,137	1879	1		8	9	1,281
1852	4		4	8	1,895	1866	1		4	5	930	1880	1	1	8	10	1,277
1853	7		6	13	2,853	1867	1		4	5	1,038						

The number of Antarctic sealing vessels belonging to each port from 1840 to 1881.

Year.	Bristol, R. I.	Falmouth, Mass.	Mystic, Conn.	Nantucket, Mass.	New Bedford, Mass.	New London, Conn.	Newport, R. I.	New York, N. Y.	Provincetown, Mass.	Stonington, Conn.	Warren, R. I.	Total.
1840			2									2
1841	1		1			4				1		7
1842	1					5				1		7
1843	1					6				2		9
1844	1		1			10				1		13
1845						7				5		12
1846						6	1					7
1847						7	1					8
1848						6				1		7
1849						5				1		6

The number of Antarctic sealing vessels belonging to each port from 1840 *to* 1881—Continued.

Year.	Bristol, R. I.	Fairhaven, Mass.	Mystic, Conn.	Nantucket, Mass.	New Bedford, Mass.	New London, Conn.	Newport, R. I.	New York, N. Y.	Provincetown, Mass.	Stonington, Conn.	Warren, R. I.	Total.
1850						5				1		6
1851						6				1		7
1852						7				1		8
1853			2			8				3		13
1854			3			9				4		16
1855						7						7
1856						10						10
1857		2				11						13
1858		2	1	2		12					1	18
1859		1	3	3		11					2	20
1860		1	2			7					1	11
1861			1			9						10
1862			1			5						6
1863						3						3
1864						3						3
1865						5						5
1866						5						5
1867						4			1			5
1868						5			1			6
1869						5						5
1870						5						5
1871						8						8
1872						8						8
1873						10		1		1		12
1874						9		1		1		11
1875						9		1		2		12
1876						10				2		12
1877						9				2		11
1878						6		1		2		9
1879						7				2		9
1880						7				3		10
1881					1	6				3		10

6. LIST OF ANTARCTIC SEALING VOYAGES FROM 1783 TO 1880.

VOYAGES FROM 1783 TO 1839.

1783 to 1790.

Prior to the Revolutionary war it is probable that no fur-seal voyages were made from the United States. Shortly after the war the ship States sailed from Boston for the Falkland Islands and secured a cargo of hair-seal skins and sea-elephant oil. This vessel brought home a few thousand fur-seal skins as an experiment. She was probably the first vessel regularly fitted from this country for sealing. Whaling vessels occasionally brought home a small quantity of sea-elephant oil, obtained while on their regular whaling voyages. In the year 1786 a few vessels were sent out from Hudson, N. Y., on whaling and sealing voyages.

1790.

From Macy's History of Nantucket we learn the following: "During several years previous to 1790 many profitable sealing voyages were made from England and other places. This induced the people of Nantucket to turn their attention to that business, with a view to prosecute it if it

presented a good prospect of advantage. Sealing was in many respects nearly allied with whaling. Seals and whales were generally met with on the same coast; it required as large vessels and as many men to engage in taking the former as the latter; the outfits were nearly the same, and the voyages were of like duration. In 1790 one vessel was fitted out for the coast of Africa, on a sealing expedition, but the original plan of the voyage was not adhered to, and the cruise was unsuccessful; but it had some good effect, for some useful knowledge was acquired respecting the different parts of the business, which was afterwards prosecuted to a considerable profit."

Two vessels sailed from New Haven, Conn., in 1790 on a fur-seal voyage to Falkland Islands and South Georgia. One of these, commanded by Capt. Roswell Woodward, brought a cargo to the United States. The other vessel, commanded by Capt. Daniel Green, proceeded to Canton, China, where the skins were exchanged for merchandise. Captain Green on this voyage circumnavigated the globe.

Captain Patten, of the ship Industry, of Philadelphia, with a part of his crew, remained on one of the Tristan d'Acunha group of islands from August, 1790 to April, 1791, for the purpose of collecting fur-seal skins, during which time he obtained 5,600 for the Chinese market, and could, he says, have loaded a large ship with oil in three weeks, so abundant were the fur-seals, sea-lions, and sea-elephants.

1792.

A ship sailed from Boston, Mass., in 1792, under Captain Lee, for the Falkland Islands and Pacific Ocean, whaling and sealing. Betsey, brig, 100 tons, Captain Steele, sailed from New York May 2, 1792; arrived at the Falkland Islands in September. "A full cargo of fur-seal skins was procured for the brig by the month of January," and the vessel arrived home in June, 1793. Edmund Fanning, who in 1797 sailed again on the Betsey, was one of the crew on this voyage.*

1793.

Eliza, ship, Capt. W. R. Stewart, of New York, arrived at Canton in March, 1793, with 38,000 fur-seal skins from Mas-á-Fuera. The cargo was sold for $16,000. She had been a long time on her voyage. This was the first vessel that went to Mas-á-Fuera for the purpose of procuring seal skins for the Chinese market. Captain Palmer was in command when she left New York, but he left her before she arrived in China. Capt. Amasa Delano, of Boston, took command at Canton and returned with her to the United States, via Cape of Good Hope.†

Schooner Swallow, Capt. Latham Gardner, of Nantucket, sailed for the Falkland Islands in 1793, whaling and sealing; arrived home May 17, 1794.

Capt. William Howell, of New Haven, wrote to his father from the South Sea seal islands, in 1793, that they found plenty of seals, but not knowing how to preserve them they lost one season.‡

1796.

Neptune, ship, Capt. D. F. Green, sailed from New Haven, Conn., November 29, 1796, and arrived at New York February 17, 1799, having taken 50,000 fur-seal skins from Mas-á-Fuera to China, where they were exchanged for goods that yielded over $260,000 in New York. (See subsequent pages for further details of this voyage.)

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*Fanning's Voyages. †Delano's Voyages.

‡Letter from Charles Peterson, of New Haven. I am indebted to Mr. Peterson for details of several early voyages.

Mr. Charles Peterson of New Haven, in a letter to Mr. H. W. Hubbell says:

"I have before me the Connecticut Journal, dated at New Haven, July 17, 1799, which announces the arrival here of the ship Neptune, Capt. Daniel Green, six months from Canton—sailed October, 1796. The Neptune had been gone two years and eight months. Her voyage was around Cape Horn to Mas-á-Fuera, where she caught a load of seal skins and took them to Canton and loaded there for New Haven. She left a part of her crew on Mas-á-Fuera under Dr. Forbes, who caught another cargo of skins, and the ship immediately returned for them and the skins and went on to China, making the same voyage as her first one, and the richest voyage ever made out of this port. The log-book of the second voyage is now at our historical society."

1797.

Barclay, ship, Capt. Griffen Barney, sailed from New Bedford, Mass., August 25, 1797, for Pacific Ocean, whaling and sealing; arrived home June 26, 1799, with 700 barrels sperm and 500 barrels whale oil; had also taken 21,000 fur-seal skins and sold them in Canton. Mr. F. C. Sanford, of Nantucket, says: "The Barclay was built at New Bedford by William Rotch, of Nantucket, in 1793. When Mr. Rotch returned from London to Nantucket, in 1795, this vessel brought him to Boston. She had a remarkable career, and was broken up in New Bedford in 1864. She was once taken by the Spaniards and retaken by Porter (see Farragut's Life by his son)."

Betsey, brig, 100 tons, Capt. Edmund Fanning, of New York, sailed from Stonington, Conn., June 13, 1797, on a sealing voyage to coast of Chili. A full cargo of 100,000 fur-seal skins were procured on the island of Mas-á-Fuera and taken to China, where they were exchanged for teas and other commodities, with which the vessel, now altered to a ship, arrived in New York April 26, 1799. The owners realized from the voyage a net profit of $52,300.

Maryland, ship, Captain Liscomb, sailed from New Bedford August 25, 1797, for the Pacific Ocean. The captain, mate, and boat's crew were captured and abused by Spaniards at Saint Mary's, but were released. The vessel when homeward bound was captured by a French privateer but released after losing 2,000 seal skins. Arrived home 1799, with 20,000 seal skins and 800 barrels sperm oil.

A ship, from Hudson, New York, was sealing at Falkland Islands in 1797, in command of Capt. David Bunker, also a North River sloop as tender, commanded by Capt. Prince Bunker.

Garland, brig, Capt. Bazilla North, was at the Falkland Islands in 1797, on a sealing voyage.

1798.

Hetty, brig, of New York, Captain Robertson, was on a sealing voyage at Patagonia in 1798.

1799.

Concord, ship, 171 tons, owned by Dudley L. Richardson and others, sailed from Salem, Mass., in August, 1799, on a sealing voyage to Mas-á-Fuera and other islands. She proceeded to China, exchanged her cargo of fur-seal skins for Chinese goods, and arrived home July 17, 1802, one hundred and forty-five days from Canton. The account of the voyage was as follows:

Ship cost $7,500, outfits $6,180	$13,680
Expenses of voyage and crew	11,462
Total expenses	25,142

Vessel and cargo sold at auction at Salem, July 28, 1802, net $67,794.56.

Minerva, ship, Capt. Mayhew Folger, of Nantucket, sailed from Salem in October, 1799, and arrived home May 3, 1802, one hundred and fifty-three days from Canton. Felt's Annals of Salem, under date of May 10, 1802, says: "The ship Minerva, belonging to Clifford Crowinshield and

Nathaniel West, has lately returned from China. She sailed round Cape Horn under Capt. Folger from Nantucket. Stopped one degree south of Chiloe, went to island of Mas-á-Fuera; here she took seal, wintered at South Lima, and proceeded to China. She came back round Cape of Good Hope. She was the first Salem vessel that circumnavigated the globe." The Salem Gazette of May 4, 1802, says: "Arrived 3d, ship Minerva, Captain Folger, one hundred and fifty-three days from Canton, and sailed from this port October, 1799, on sealing voyage and has been successful."

Neptune, ship, Captain Howell, sailed from New Haven in 1799 on a sealing voyage to Mas-á-Fuera and China. Captain Green, who commanded the Neptune on her previous very successful voyage, had left a crew of men on the island of Mas-á-Fuera. The skins secured by this crew, with additional ones taken by Captain Howell, were sold in China, and a profitable voyage made.

Oneida, ship, Captain Brintnall, of Nantucket, sailed from New York in 1799 for Mas-a-Fuera and made a splendid voyage. The Oneida arrived home with a valuable cargo of goods from China.

Perseverance, ship, Capt. Amasa Delano, sailed from Boston, Mass., November 10, 1799, on a sealing voyage to coast of Chili; got a cargo of fur-seal skins and exchanged them at Canton, China, for teas, sugars, &c., with which the vessel arrived home November, 1802.

Prudence, sloop, Capt. Jonathan Paddock, sailed in 1799 from Nantucket, Mass., for Patagonia on a whaling and sealing voyage. Arrived home July 17, 1802; no report.

Regulator, of New York, lost at South Georgia in 1799. Her cargo of 14,000 fur-seal skins, together with sails, cables, and other articles saved from the wreck, were sold to an English sealing ship.

Captain Hubbell, of New Haven, went on a sealing voyage in 1799 and returned in 1802, sailing round the world.

1800.

Alexander, ship, Captain Dodge, of Boston, bound on a fur-trading voyage to northwest coast of America, in the spring of 1800, left a boat crew on St. Ambrose Island to kill fur-seals, intending to return for them in the fall of that year. Made a ruinous voyage.*

Aspasia, armed Corvette, sailed from New York under Capt. Edmund Fanning May 11, 1800, on a sealing and exploring voyage to the South Seas. At South Georgia 57,000 fur-seal skins were secured and taken to China. Captain Fanning reported that at South Georgia sixteen other American and English vessels procured 65,000 fur-seal skins from November, 1800, to February, 1801. On his way to China he stopped on the coast of Chili, where it was learned that there were upwards of thirty American sealing vessels, whose cargoes were destined for the China market.

Miantonomah, ship, Capt. Valentine Swain, sailed from Norwich, Conn., September 5, 1800, bound for the coast of Chili on a sealing voyage. The vessel was seized by the Spanish and condemned at Valparaiso, 1801; had taken 50,000 seal skins that spoiled after the seizure but were subsequently paid for by the Spanish Government.

Little Sarah, schooner, arrived at Norwich, Conn., in 1800, with 7,000 fur-seal skins and 6,000 hair-seal skins from southern oceans.

Sally, ship, Capt. Nathaniel Storer, sailed from New Haven May 22, 1800, arrived home June 2, 1803. Concerning this voyage Capt. Peter Storer, aged ninety years, in a letter to the author dated, Westville, Conn. March 15, 1882, says:

"My father, Nathaniel Storer, commanded the ship Sally on a sealing voyage in 1800, and took me along with him. I was then nine years and nine months old. We sailed from New Haven

* Manuscript notes of Capt. Caleb Brintnall.

the 22d day of May, 1800, for the coast of Patagonia, where we built our shallop, a schooner of 28 tons, and went to the Falkland Islands in December, 1800, where we took a few skins. From there we went to South Georgia, and at that island took the greater part of our cargo of fur-seal skins. We sealed two seasons at South Georgia, 1801 and 1802. We dried the skins at Hurl Gate Harbor, on the Patagonian coast, and left there early in 1803. Sailing round Cape Horn, we stopped at all the seal islands on the Pacific coast but got only a few skins. We then sailed for the Sandwich Islands, where we stopped two or three days and then left for Canton, China, about the middle of 1802. We arrived at Canton in November with about 45,000 fur-seal skins, all cured and dried, but had to sell them for 87½ cents apiece, which was bad news for all hands. We left *Canton for home the last of January, 1803, by the way of the Cape of Good Hope, with a cargo* of tea, silk, nankeens, &c., and arrived at New Haven on the 2d of June, 1803, after a voyage of three years and ten days. Three men died on the voyage.

"The ship Sally was built on the Connecticut River, opposite Middletown, and was 230 or 240 tons burthen. She was a 20-gun ship, with a crew of officers and men numbering 45. She had 16 waist guns, 4 pounders, and 4 swivels; also small arms, boarding pikes, &c., and was what you may call a letter of marque, ready to fight her way if necessary. I was powder-monkey for the two guns aft on the starboard side, and was much pleased when the drum beat to quarters.

"Eben H. Mix was supercargo of the Sally, and Joseph Driggs was doctor; both these men lived in Middletown, Conn. The Cowles, of Farmington, Conn., were owners in the ship. I don't think there is one of the crew living that was in the ship with me. When I look back and think of that voyage I can hardly realize that it is so. Only think, eighty-two years ago last January I was running on sea-elephants' backs on the island of South Georgia, where these animals lay in rows on the beach."

Mr. Charles Peterson writes that Capt. N. Storer went on another sealing voyage in the ship Huntress, but was never heard from.

Trial, ship, Capt. Thomas Coffin, of Nantucket, sailed in 1800 on a sealing voyage on the Chilian coast. She was seized by the Spaniards and condemned at Valparaiso in 1801.

1801.

Brothers, ship, Captain Kidder, of Nantucket, and ship Favorite, Captain Jonathan Paddock, went on a sealing voyage to Chili about the year 1801, and so on to China, and returned to Nantucket with cargoes of silks and other Chinese products.

Mars, ship, Capt. *Uriah* Swain, sailed from Nantucket in *1800* or *1801*, and returned *August* 12, 1802. She secured a load of fur-seal skins at Mas-á-Fuera and other islands, and took them to China, and made a good voyage. Mr. F. C. Sanford says: "This vessel wound up at Baltimore in 1813, being one of those that was sunk in the harbor to prevent the English attack upon that city. Captain Swain, of the ship Mars, consorted at Mas-á-Fuera with ship Pagassus, of New York, which was subsequently lost on that island. They buried $40,000, and Swain took it up by agreement, and accounted for it in New York on his return home."

The schooner Grace Greenwood, of New Haven, made a successful sealing voyage to Mas-á-Fuera and other Pacific islands, and returned to the United States in 1802.

Oneida, ship, Capt. Caleb Brintnall, sailed from New York in 1801 on a sealing voyage to the *Pacific Ocean.*

Captain Scannon, in his History of the American Whale Fishery, states that the sealing fleet off the coast of Chili in 1801 numbered thirty sail of vessels, most of which were under the American flag.

1802.

Eliza, ship, Captain Bunker, sailed from Nantucket in July, 1802, bound for southern seas on a sealing voyage.

Ship Huron, Captain Moulthorp, of New Haven, sailed September 2 on sealing voyage to coast of Chili. Brought home 19,000 hair-seal skins obtained on the islands of Mocca, St. Marys, and Lobos. Returned to Chili, and from the island of Mas-á-Fuera, in March, 1805, took on board about 15,000 fur-seal skins taken or purchased by the men left there on the previous voyage. Proceeded to Canton, where the skins were sold at 95 cents each, and a cargo of articles taken for Hamburg. The Huron sailed thence to St. Petersburg and arrived home October 30, 1806.

Lady Adams, ship, 230 tons, Captain Fitch, sailed from Nantucket August 24, 1802, on a sealing voyage to southern seas. Was last reported bound to China with 32,000 fur-seal skins.

Mr. F. C. Sanford, of Nantucket, says:

"The ship Lady Adams made a sealing voyage in 1801. I have the journal of this voyage that was made to Chili and thence to Canton, where she exchanged the seal skins for teas, silks, &c., and came home in company with the ships Essex, of Salem, and Gossimer, of Philadelphia. The Lady Adams went whaling from here after that, making splendid voyages, and burned up in Japan in 1823. None saved from her. She was a very pretty ship. Obed Fitch was her commander, and was in the same line of Dr. Franklin, from a famous stock. He came in the ship Mars from a voyage to Europe, when she was sunk at Baltimore as before stated. When the Essex arrived at Salem our folks here purchased her in 1804. She made many whaling voyages, and was stove by a whale between Marquesas and Tahita in 1820. Her men were in boats over ninety days, and suffered terribly, being obliged to eat some of their own number."

Minerva, ship, 200 tons, Capt. Jones, sailed from Nantucket in 1802 for the Pacific Ocean, whaling and sealing. Procured 23,000 seals skins and took them to China. Vessel arrived home in August, 1804.

1803.

Alliance, ship, Captain Gardner, sailed from Nantucket for Patagonia in 1803. Arrived home April 14, 1804, full of sea-elephant oil. Arrived from another voyage in April, 1805, full of sea-elephant oil.

Dispatch, ship, Captain Howard, of Hartford, was sealing on the coast of Chili in 1803. In four months took 8,000 hair-seal skins.

Draper, ship, Captain Howell, of New Haven, was sealing at St. Mary's Island, coast of Chili, in 1803.

Perseverance, ship, Capt. Amasa Delano, sailed from Boston September 25, 1803, for the coast of Chili on a sealing voyage. Secured a cargo of fur-seal skins and took them to China. Arrived at Boston July 26, 1807.

Pilgrim, schooner, 62 tons, Capt. Samuel Delano, sailed from Boston September 25, 1803, as tender to the Perseverance, on a sealing voyage to coast of Chili. Took a cargo of 13,000 fur-seal skins to China, where the vessel and cargo were sold.

Rachael, ship, Captain Bunker, of Salem, was at Mas-á-Feura in 1803.

Mr. Joel Root says that several other American sealing vessels and about one hundred and fifty men reported on Mas-á-Fuera in this year.

Rebecca, ship, Captain Pitts, of New York, landed a sealing gang on the island of Mocca in 1803.

Union, brig, Capt. Isaac Pendleton, sailed from New York in 1803 on a sealing voyage on the

Australian coast. Discovered Border's Island in latitude 34° 47′ south, longitude east of Paris 136° 41′. A small schooner was here built for further exploration. Fourteen thousand fur-seal skins were secured at Border's Island and landed at Sydney, Australia. The island of South Antipodes was rediscovered and a sealing gang of twelve men left there. The Union sailed from Sydney on a voyage to the Feejee Islands and was lost. The crew left on the Antipodes secured 60,000 prime fur-seal skins, which were taken to China in an English vessel chartered by Mr. Lord at Sydney. The schooner sailed from Sydney on a southern cruise in search of new seal islands, and was never heard from.*

Volunteer, brig, Captain Jenkins, sailed from Hudson, N. Y., for Patagonia in 1803; last reported with 300 barrels whale oil and some seal skins.

Mr. F. C. Sanford, of Nantucket, writes:

"After 1800 we had many ships in the sealing trade. The ship Rose, Capt. James Cary, made three voyages between 1803 and 1813, when she was taken by the English and went to England with a load of tea. This vessel was built at Nantucket. The ship Criterion, Capt. Peter Chase, sailed on a sealing voyage from Boston for Mr. Samuel Parkman."

1804.

Commerce, ship, Captain Eldrige, sailed from Nantucket in 1804 for the Pacific Ocean. Returned February 15, 1806, full of sea-elephant oil. Captain Eldridge died on the voyage in 1804.

Catherine, ship, Capt. Henry Fanning, sailed from New York in 1804 or 1805 on a sealing voyage to the Australian coast and Crozet Islands. An officer and sealing crew were left at Prince Edward Island, and the vessel, after visiting Cape of Good Hope for the winter, proceeded in search of the Crozet Islands. Captain Fanning, after considerable search, was fortunate in rediscovering these islands, and he, with his men, were the first human beings to land there. Abundance of fur-seal were found, and a gang of men left there who would remain until the next season, when another vessel, to be sent out under Mr. Fanning's agency, would visit these islands. The Catherine proceeded to China with her cargo of skins. Two other sealing vessels obtained cargoes at these islands at the same time as the Catherine, one a ship from Boston, under Captain Percival, the other from Hudson.*

1805.

Vancouver, ship, Captain Brown, was at Mas-á-Fuera in January, 1805, and supplied the sealers there with food. The Vancouver was either on a sealing voyage or was bound on a trading voyage to the northwest coast.

A vessel in command of Captain Delano, of Boston, was fur sealing on the island of St. Ambrose, near Mas-á-Fuera in the spring of 1805.

1806.

Catherine, ship, Capt. H. Fanning, made a sealing voyage about the year 1806 to Crozet and Prince Edward Islands, southeast of Cape of Good Hope. Secured a cargo on the latter islands, where other vessels the same year obtained full cargoes.

1807.

Union, brig, Captain Hussey, sailed from Nantucket for Patagonia in 1807, and arrived home March 12, 1808, with oil and seal skins.

Triumph, ship, Capt. Caleb Brintnall, of New Haven, January 9, 1807, to August, 1809, on a fur-sealing voyage to Falkland, Mas-á-Fuera, and other seal islands; sailed thence to China with 50,000 fur-seal skins.

*Fanning's Voyages.

1808.

Topaz, ship, Captain Folger, of Boston, was on a sealing voyage in 1808, and rediscovered Pitcairn Island.

1811.

Manilla, ship, Captain McCleave, sailed from Nantucket for Patagonia in 1811, and was captured within five days' sail of Nantucket by the English letter of marque Tiger, in 1812, full of sea-elephant oil.

1812.

Nanina, brig, Capt. Valentine Barnard, of Hudson, sailed from New York April 4, 1812, for the Falkland Islands on a whaling and sealing voyage. Arrived there, the English brig Isabella, with a number of passengers, was found wrecked. The English officers offered Captain Barnard all of the Isabella's cargo which could be saved if he would rescue them, to which he replied that his sense of duty commanded him to relieve them without reference to compensation; nevertheless, if they so desired, he would take the remnant of the wrecked cargo as some repayment for a spoiled voyage. Captain Barnard received the officers, crew, and passengers of the Isabella on board his vessel, and to reward him for his exertions and loss his vessel and crew were infamously betrayed into the hands of English authorities, and he and his crew brutally treated. Tidings of the affair coming to the ears of the English naval commander in those waters, he dispatched a vessel to release the American captives. Captain Barnard's protest appears in the Hudson Bee in 1814.*

1815.

Belvidere, brig, Captain Baxton, sailed from Nantucket for Patagonia May 18, 1815, and arrived home March 6, 1816, with 840 barrels sea-elephant oil.

General Scott, ship, whaling and sealing from Hudson, N. Y., in 1815. Made a poor voyage because of inexperience.

Lydia, ship, 160 tons, Captain McCleave, sailed from Nantucket for Patagonia May 16, 1815, and arrived home March 10, 1816, with 1,012 barrels sea-elephant oil.

Maria, schooner, Captain Worth, sailed from Nantucket for Patagonia in 1815, and arrived home April 2, 1816, with 700 barrels sea-elephant oil.

Volunteer, ship, sailed from New York in 1815 on a sealing voyage. Left a boat's crew on Falkland Islands to gather seal skins, and proceeded to Mas-á-Fuera, where 2,000 fur-seal skins and 2,000 hair-seal skins were obtained; arrived home in 1817.

Zephyr, ship, Capt. Caleb Brintnall, of New Haven, made a sealing voyage to the South Seas in 1815.

1816.

Indus, brig, 262 tons, Captain Joy, sailed from Nantucket for Patagonia May 17, 1816, and arrived home July 1, 1817, with 1,430 barrels sea elephant oil.

Triumph, ship, Capt. Caleb Brintnall, of New Haven, made a sealing voyage in 1816 or 1817 to the Chilian coast and China. Mr. Mix, the supercargo, was poisoned at the Sandwich Islands.

1817.

Mary, brig, Captain Howland, sailed from New Bedford for Patagonia in May 1817, and arrived home February 17, 1818, with 1,300 barrels sea-elephant oil.

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* STARBUCK: Report on the American Whale Fishery, 1876.

Sea Fox, ship, sailed from New York for Falkland Islands in 1817, and arrived home in 1818 with 5,000 fur-seal skins and 1,000 barrels sea-elephant oil.

William Thacher, ship Captain Tucker, sailed from New Bedford for Patagonia in May, 1817, and arrived home February 7, 1818, full of sea-elephant oil.

1818.

Frederick, brig, sailed from Stonington in 1818, on a sealing voyage to Pacific Ocean; got a cargo of 25,000 hair-seal skins on St. Mary's Island.

Gleaner, brig, Captain Leslie, sailed from New Bedford for Patagonia in May, 1818, and arrived home January 10, 1819, with 1,030 barrels sea-elephant oil.

Governor Hawkins, ship, Captain Coffin, sailed from Philadelphia in 1818 on a sealing voyage and arrived home in 1819 with 4,000 fur-seal skins and 350 barrels sea-elephant oil. Captain Coffin died on the voyage.

1819.

Gleaner, brig, Captain Leslie, sailed from New Bedford for Patagonia in May, 1819, and returned March 19, 1820, with a cargo of sea-elephant oil.

Hersilia, brig, Capt. James P. Sheffield, sailed from Stonington, Conn., in July, 1819, bound on an exploring and sealing voyage, and arrived home in the spring of 1820 with 11,000 choice fur-seal skins from New South Shetlands, the first cargo brought from those islands.

1820.

Diana, brig, Captain Bunker, sailed from Nantucket in 1820 on a sealing voyage to South Atlantic Ocean.

Esther O'Kane, schooner, of Boston, was at the South Shetlands on a sealing voyage in 1820.

General Knox, ship, Captain Orne, sailed from Salem, Mass., in 1820, for South Shetlands, and arrived home June 6, 1821, with 5,000 fur-seal skins and 600 barrels sea-elephant oil.

Brig Henry and schooner Aurora sailed from New York in 1820, on a sealing voyage to South Shetlands, and arrived home in 1821 with cargoes of fur-seal skins.

Schooner Huntress, Capt. Chris. Burdick, and brig William and Nancy, Capt. Tristram Folger, sailed from Nantucket in 1820, on sealing voyages to South Shetlands, and arrived home in 1821.

Nancy, brig, Captain Upton, sailed from Salem, Mass., in 1820, for Falkland and South Shetland Islands on a sealing voyage, and arrived home May 27, 1822, with 1,800 fur-seal skins and 100 barrels sea-elephant oil.

A fleet of vessels sailed from Stonington, Conn., in fall of 1820 on sealing voyages to South Shetlands. This was the first fleet fitted for sealing at these islands. Most of the vessels arrived home in 1821, with an aggregate of 88,000 fur-seal skins and 1,007 barrels sea-elephant oil. The brig Clothier was wrecked on the rocky shores of South Shetlands, and sealers tell me that portions of the vessel may still be seen there. The names of the vessels were as follows: Sloop Hero, Capt. Nath. Palmer; schooners Express, Captain Williams, and Free Gift, Captain Dunbar; brigs Catherine, Clothier, Emmeline, Frederick, and Hersilia.

1821.

Charity, brig, Captain Barnard, sailed from New York in 1821 for South Shetlands, and arrived home in May, 1822, with 8,000 fur-seal skins and some oil.

Essex, sloop, Captain Chester, sailed from Stonington in 1821 for South Shetlands, and arrived

home in April, 1822, with 200 barrels sea-elephant oil and some fur-seal skins; was tender to the Stonington fleet.

General Scott, brig, sailed from New London, Conn., for South Shetlands on 1821, and arrived home in May, 1822, with 1,200 fur-seal skins and 300 barrels sea-elephant oil.

Harmony, schooner, Captain Hodges, sailed from Nantucket in 1821, on a sealing voyage to South Shetlands and returned June 10, 1822, with 1,000 fur-seal skins, and 250 barrels sea-elephant oil.

Huron, ship, Captain Davis, sailed from New Haven, Conn., in 1821 for South Shetlands, and secured a cargo of 12,000 fur-seal skins, 700 barrels sea-elephant oil.

James Munroe, sloop, Captain Palmer, sailed from Newport, R. I., in 1821 for South Shetlands, and arrived home April 20, 1822, full of oil and furs.

Wasp, schooner, arrived at New York in 1821 with 700 barrels sea-elephant oil; arrived again in May, 1822, with cargo of hair-seal skins, and sailed June 30, 1822, under Capt. Benjamin Morrell, on a sealing voyage to South Pacific Ocean. The vessel was sold at Valparaiso in 1824, and her cargo of 7,000 fur-seal skins was shipped home in ship Endeavor, of Salem, Mass.

Six vessels sailed from Stonington, Conn., in fall of 1821, and returned in 1822, of which no record has been found; one of these vessels returned from South Shetlands with 404 fur-seal skins. The entire fleet in season of 1821–'22 got only 1,500 fur-seal skins at South Shetlands.

1822.

Jane Maria, brig, arrived at New York April 26, 1822, with cargo of fur-seal skins from Falkland Islands.

Hersilia, brig, of Stonington, Conn., while on a sealing voyage in 1823 was captured on coast of Chili by the Spanish. Had sent home 18,000 hair-seal skins.

Henry, schooner, Capt. Robert Johnson, sailed from New York, June 30, 1822, in company with schooner Wasp, on a sealing voyage to southern seas. Arrived home in 1824 with 13,000 fur-seal skins from Auckland Islands, and sailed again the same year for the Aucklands; but after securing a partial cargo the vessel was lost with all on board while on an exploring cruise.

1823.

Dragon, brig, arrived at New Bedford May 30, 1823, with cargo of sea-elephant oil.

Only Son, sloop, arrived at Stonington in 1823, with 7,500 fur-seal skins from South Atlantic Ocean.

1824.

Dove, of Nantucket, arrived at Philadelphia August 27, 1824, with sperm oil and two live sea-elephants.

Tartar, schooner, Capt. Benjamin Morrell, sailed from New York July 19, 1824, on a sealing voyage to southern oceans, and arrived home May 8, 1826, with 6,000 fur-seal skins.

1825.

Eliza Ann, schooner, arrived at Stonington, Conn., in 1825 with 3,000 fur-seal skins.

1827.

Sarah Atkins, ship, Captain Kenny, sailed from Portsmouth, R. I., in March, 1827, for Falkland Islands, and returned in June, 1828, with 4,000 fur-seal skins, some other skins, and oil.

Washington, schooner, 84 tons, Capt. John Dickenson, arrived at Boston November 10, 1827, from south seas, whaling and sealing. No report of cargo.

1828.

Alabama, brig, of Stonington, made three sealing voyages from 1823 to 1828, and brought home 30,000 hair-seal skins from southern seas.

Antarctic, schooner, 172 tons, Capt. Benjamin Morrell, sailed from New York in 1828 on a sealing voyage to coast of Africa, and arrived home July 14, 1829, with 4,000 fur-seal skins.

Penguin, schooner, arrived, at Stonington in 1828 with 3,000 fur-seal skins from South Atlantic Ocean.

1829.

Alabama, brig, arrived at Stonington in 1829 from south seas with 8,000 fur-seal skins and 15,000 hair-seal skins.

Bogota, brig, arrived at Stonington in 1829 with 3,000 fur-seal skins and 15,000 hair-seal skins from southern oceans.

General Putnam, schooner, of Newburyport, Mass., took 1,500 fur seal-skins on coast of Africa in 1828 or 1829. Vessel condemned at Rio Janeiro, March 31, 1829 or 1830.

Pacific schooner, Capt. Jas. Brown sailed from Portsmouth, R. I., October 1, 1829, on a sealing voyage to South Seas, and left South Georgia March 5, 1830, having taken up to that time 256 skins and 1,800 gallons of sea-elephant oil.

Penguin, schooner, arrived at Stonington in 1829 with 3,000 fur-seal skins from South Atlantic Ocean.

Seraph, brig, arrived at Stonington in 1829 with 1,000 fur-seal skins and 25,000 hair-seal skins from southern oceans, and sailed again in 1829 in company with brig Anawan on an exploring and sealing voyage in Antarctic seas.

Spark, schooner, Captain Allyn, sailed from New London, Conn., October 25, 1829, for coast of Africa, and arrived home May 10, 1831, with 3,700 fur-seal skins.

1830.

Free Gift, schooner, arrived at Stonington in 1830 with 5,200 fur-seal skins from southern seas.

1831.

Alonzo, schooner, arrived at Stonington in 1831 with 2,200 fur-seal skins from the coast of Africa, &c. Arrived again in 1832 with about the same number of fur-seal skins.

Charles Adams, ship, Capt. Alex. Palmer, sailed from Stonington September 1, 1831, for South Shetlands, and arrived home September 2, 1833, with 1,000 fur-seal skins, 2,100 barrels sea-elephant oil, and 100 barrels sperm oil. Had schooner Courier, Captain Barnard, as tender.

Penguin, schooner, arrived at Stonington in 1831 from southern oceans with 1,400 fur-seal skins. Arrived again in 1832 with 3,000 fur-seal skins.

Spark, schooner, arrived at New London in 1831 with 3,700 fur-seal skins from southern seas.

Telegraph, schooner, Captain Bray, sailed from Bristol, R. I., in 1831.

Captain Bray sailed from Newburyport in a schooner prior to 1830 on a sealing voyage to Falkland Islands and vicinity of Cape Horn. Had shipped home about 3,000 fur-seal skins, but finally lost his vessel on Terra del Fuego. Part of the crew being out on various seal islands gathered 1,000 to 1,500 fur-seal skins. After about a year Captain Bray returned to them in a vessel built out of stuff saved from the wreck. Captained Bray returned to America and sailed as above in the Telegraph from Bristol and made two successful voyages, arriving home in 1832 with about 3,500 fur-seal skins, and in 1833 with about 2,000 fur-seal skins. He sailed again in 1833 and lost his vessel on Hope Island, southwest coast of Terra del Fuego, in January, 1834.

1832.

Betsey, schooner, Captain Fuller, arrived at New London in 1832 from the coast of Africa with 1,300 prime fur-seal skins, 500 pup fur-seal skins, and 74 bullock hides.

Montgomery, arrived at Mystic, Conn., with 2,000 fur-seal skins from southern seas.

Superior, schooner, of Stonington, made three voyages to southern seas prior to 1833 and brought home about 8,000 fur-seal skins.

Talma, schooner, Capt. G. L. Allyn, sailed from New London in July, 1832, for Patagonia and vicinity, and arrived home in May, 1834, with 2,700 fur-seal skins that sold for $12.50 each.

1833.

Courier, schooner, arrived at Stonington in 1833 with 2,000 fur-seal skins from southern seas.

Hamilton, ship, Captain Pendleton, sailed from New York January 9, 1833, for Falkland Islands, and returned October 9, 1834, with 1,150 fur-seal skins, also whale oil and bone.

Monticello, schooner, arrived at Baltimore, Md., in 1833, with 2,500 fur-seal skins and 3,000 hair-seal skins from Cape Horn and coast of Chili. Sailed again in July, 1833, under Captain Lindell, but did poorly.

Montgomery, schooner, Captain Cliff, sailed from New London in 1833 on a South Atlantic whaling and sealing voyage, and arrived home September 1, 1834, with 700 fur-seal skins and some whale oil and bone. Sailed again in 1834, and returned in 1835 with 1,000 fur-seal skins and 200 other skins.

Only Son, sloop, of Stonington, Captain Cutler, was sealing at Terra del Fuego in 1833.

Sun, schooner, Captain Trott, sailed from New London in 1833 and arrived home from Falkland Islands September 27, 1833, with 1,000 fur-seal skins and some oil.

1834.

Betsey, schooner, Captain Elliot, arrived at New London May 7, 1834, with 1,390 fur-seal skins, 500 pup seal-skins, 74 bullock hides, and some whale oil from the South Atlantic. Sailed again under Capt. G. L. Allyn July 28, 1834, with a crew of twenty-one men on a whaling and sealing voyage to coast of Africa, and arrived home in March, 1836, with 1,800 fur-seal skins and 100 barrels of oil.

Elizabeth Jane, schooner, of New York, arrived home in 1834 from southern seas with 800 fur-seal skins.

Emily, schooner, arrived at New London in 1834 with 40 fur-seal skins from southern seas. Arrived again in 1835 with 800 fur-seal skins and 200 barrels of sea-elephant oil.

Henrietta, schooner, of Norwich, Conn., arrived home in 1834 from southern seas with 423 fur seal, 2,946 hair seal, 182 otter, and 102 goat skins.

Ospray, schooner, arrived at New London in 1834 with 74 fur-seal skins from southern seas; had sent home about 2,000 fur-seal skins.

Talma, schooner, arrived at Stonington in 1834 with 1,220 fur-seal skins from the coast of Africa.

Tampico, brig, Captain Holmes, of Mystic, was on a sealing voyage on the coast of Africa and at the Crozets in 1834 and 1835. Was reported in spring of 1835 with 160 fur-seal skins.

1835.

Aaron Howard, schooner, arrived at New London in 1835 from southern seas with 1,000 fur-seal skins.

Atlas, ship, arrived at Stonington in 1835, from South Atlantic, with 1,500 fur-seal skins, 600 hair-seal skins, and 71 bullocks' hides on freight.

Betsey, schooner, Capt. William Noyes, sailed from New London in July, 1835, for the South Atlantic, &c., and returned in May, 1837, with 500 fur-seal skins, 15,000 hair-seal skins, and 600 otter skins.

Colossus, schooner, arrived at Stonington in 1835 with 430 fur-seal skins and 1,000 hair-seal skins from southern seas.

Eveline, schooner, from South Atlantic Ocean, arrived at Stonington May 3, 1835, with 622 fur-seal skins, 890 hair-seal skins, and 34 barrels of sea-elephant oil.

Harriet, schooner, arrived at Stonington in 1835 with about 5,000 fur-seal skins from southern seas.

Hancox, schooner, arrived at Stonington in 1835 with 450 fur-seal and 25 otter skins from South Seas.

Maria Jane, schooner, arrived at New York in 1835 from South Atlantic with 1,500 fur-seals skins.

McDonough, schooner, arrived at New London in 1835 with 654 fur-seal skins from South Seas.

Penguin, schooner, arrived at Stonington in 1835 from South Seas with cargo of 2,015 fur-seal skins and 350 hair-seal skins; also on freight from schooners Talma, Betsey, and Aaron Howard, 890 fur-seal skins and 350 hair-seal skins.

Swift, schooner, arrived at Stonington in 1835 from the South Atlantic with 1,500 fur-seal skins.

Talma, schooner, arrived at Stonington in 1835 from Cape Horn with 1,200 fur-seal skins.

William, schooner, of Stonington, sold at Chili in 1835; had sent home 6,000 hair-seal skins,

1836.

Atlas, ship, 261 tons, Captain Barnum, sailed from New London for South Atlantic May 17, 1835 or 1836, and returned April 9, 1837, with 1,650 barrels of sea-elephant oil.

Charles Adams, ship, 268 tons, sailed from Stonington October 15, 1836, under command of Captain Carew, bound on a sealing voyage, but was burned at the Falkland Islands in 1837.

Corvo, ship, 349 tons, Captain Beck, sailed from Stonington in October, 1836, for Falkland Islands, and arrived home November 13, 1837, with 1,400 barrels sea-elephant oil and 1,300 barrels whale oil. Had for tenders the schooners La Grange and Bolton.

1837.

Atlas, ship, 261 tons, Captain Bailey, sailed from Mystic, Conn., June 14, 1837, for Crozet Islands, and was lost with her tender, schooner Colossus, on the Crozets in 1837 or 1838.

Bolton, schooner, sailed from Stonington in December, 1837, for Falkland Islands, and arrived home September 1, 1838, full of sea-elephant and whale oil.

Corvo, ship, 349 tons, Captain Beck, sailed from Stonington for Falkland Islands December 27, 1837, and arrived home October 13, 1839, with 1,200 barrels sea-elephant oil and 2,400 barrels whale oil.

Penguin, schooner, arrived at Stonington in 1837, with 1,500 fur-seal skins from southern seas.

Plutarch, schooner, 81 tons, of Stonington, made two sealing voyages to the southern seas in 1835 and 1837, and brought home 3,500 fur-seal skins.

1838.

Antarctic, schooner, arrived at Stonington in 1838 with 3,000 fur-seal skins from southern seas.

Columbia, ship, 492 tons, Captain Smith, sailed from New London for Desolation Island July 25, 1838, and arrived home May 1, 1839, with 3,700 barrels of sea-elephant oil.

Governor Endicott, ship, 298 tons, Captain Holmes, sailed from Mystic, Conn., July 11, 1838, for South Seas, and arrived home September 5, 1839, with 1,300 barrels sea-elephant oil. Had for tender the schooner Plutarch, 81 tons, Captain Stevens. Sailed again December 1, 1839, under Captain McKinstry, and wrecked on New Holland, July 8, 1840.

Tampico, brig, 99 tons, Captain Bailey, sailed from Mystic, Conn., for Crozet Islands in June, 1838, and arrived home April 8, 1839, with 100 barrels sea-elephant oil.

Uxor, brig, 96 tons, Captain McKinster, sailed from Mystic, Conn., for South Atlantic Ocean, May 15, 1838, and arrived home March 9, 1839, with 300 barrels sea-elephant oil.

1839.

Aaron Howard, schooner, arrived at New London in 1837 and 1839, with a total of 4,500 fur-seal skins from southern seas.

Benjamin D'Wolf, schooner, 66 tons, Captain Smiley, sailed from Newport, R. I., March 30, 1839, on a sealing voyage to Cape Horn and vicinity. Captain Smiley made two voyages in this vessel, and secured each time about 2,000 fur-seal skins. He also made two other sealing voyages prior to 1844 in another vessel, one a good voyage and the other a failure, and the vessel lost.

Henry, brig, 98 tons, Captain Pendleton, sailed from Stonington, Conn., for Crozet Islands, July 16, 1839, and arrived home May 8, 1840, with 300 barrels sea-elephant oil.

Penguin, schooner, sailed from Stonington in 1839, and arrived home in 1840 with 800 fur-seal skins from southern seas.

Philetus, ship, 278 tons, Captain Brewster, sailed from Stonington for Crozet Islands July 10, 1839, and arrived home February 28, 1841, with 1,800 barrels sea-elephant oil.

Rebecca Groves, brig, 129 tons, Captain Barnum, sailed from Stonington for Indian Ocean July 15, 1839, and arrived home June 7, 1840, with 650 barrels sea-elephant oil.

Somerset, brig, Captain Barnum, sailed from Stonington for Crozet Islands in 1839 and arrived home in 1840, with 800 barrels sea-elephant oil.

An unknown schooner belonging to Newburyport, Mass., made two sealing voyages to southern seas prior to 1840, and brought home about 5,000 fur-seal skins.

Tampico, brig, Captain Pendleton, sailed on a sea-elephant voyage from Mystic, Conn., June 22, 1839, and arrived home March 6, 1840, with 550 barrels oil.

Uxor, brig, Captain Mitchell, sailed from Mystic, Conn., July 10, 1839, on a sea-elephant voyage, and arrived home in 1840, with 600 barrels oil.

1840 TO 1880.

The following record of voyages from 1840 to 1880, as well as for preceding years, is compiled from the files of New London and New Bedford papers, from custom-house records, and from information obtained from merchants, retired sealers, and others, at the various sealing ports:

ANTARCTIC SEALING VOYAGES 1840 TO 1850.

[Arranged alphabetically by vessel's name.]

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
Stonington, Conn.								
Alice & William	Schooner	79	South Atlantic	Aug. 10, 1844	June 15, 1845	800	.....	
Bristol, R. I.								
America	Bark	257	South Pacific	Oct. 7, 1840	July 22, 1844	4,000	1,200	Also sperm and whale oil and bone.
Newport, R. I.								
America	Bark	217	South Atlantic	Aug. 31, 1845	Sept. 9, 1847	.....	1,200	Also 400 barrels whale oil.
New London, Conn.								
Atlas	Schooner	81	Desolation Island	Aug. 11, 1847	May 2, 1849	.....	200	Tender to Corinthian.
Do	do	81	do	Sept. 1, 1849	Apr. 22, 1851	.....	220	
Betsey	do	113	South Pacific	Aug. 14, 1840	June 8, 1842	200	.....	Also 12,000 hair-seal skins, 200 other skins, and whale oil.
Do	do	125	South Seas	July 18, 1842	June 3, 1844	300	.....	Also 12,000 hair-seal skins, 400 other skins, and whale oil.
Do	do	125	Cape Horn	July 19, 1844	.....	.....	.....	Lost in Straits of Magellan January 3, 1845.
Stonington, Conn.								
Bolton	Bark	220	South Seas	July 30, 1843	May 24, 1844	.....	1,400	
Do	do	220	Crozet Islands	July 1, 1844	May 30, 1845	.....	800	
Byron	do	170	South Seas	July 20, 1843	May 26, 1845	.....	1,000	Also 300 barrels whale oil and 2,400 pounds whalebone.
New London, Conn.								
Charles Carroll	Ship	404	Desolation Island	June 26, 1844	Mar. 10, 1845	.....	1,200	Also 2,000 barrels whale oil and 17,000 pounds whalebone.
Do	do	412	do	Aug. 26, 1845	May 24, 1847	.....	2,000	Also whale oil and bone.
Do	do	412	do	July 21, 1847	June 3, 1849	.....	3,000	Went to California in 1849.
Columbia	do	492	South Atlantic	July 9, 1840	May 6, 1842	.....	4,000	Also 100 barrels sperm oil.
Do	do	492	do	July 13, 1842	Apr. 8, 1844	.....	3,200	Also 1,000 barrels whale oil and 7,000 pounds whalebone.
Corinthian	do	505	Desolation Island	Sept. 3, 1847	June 26, 1849	.....	2,000	Also whale oil.
Do	do	505	do	Sept. 7, 1849	Apr. 27, 1851	.....	1,000	Also whale oil and bone.
Mystic, Conn.								
Emmeline	Schooner	76	South Seas	July 9, 1843	Apr. 4, 1844	650	800	
Stonington, Conn.								
Enterprise	Brig	95	South Atlantic	Sept. 3, 1840	May 5, 1842	300	.....	
Do	do	95	Coast of Chili	Aug. 10, 1842	May 30, 1844	500	.....	Also 1,000 hair-seal skins.
New London, Conn.								
Exile	Schooner	70	Desolation Island	July 17, 1844	Jan. 8, 1846	.....	200	Also whale oil and bone.
Do	do	83	do	Apr. 9, 1846	May 10, 1848	.....	330	
Do	do	83	do	Aug. 14, 1848	July 3, 1850	.....	260	Tender to Peruvian.
Franklin	do	119	South Atlantic	Aug. 13, 1842	Apr. 8, 1844	120	1,100	Tender to Columbia.
Do	do	119	Desolation Island	June 5, 1844	Apr. 7, 1846	.....	500	
Do	do	119	South Seas	July 28, 1846	July 19, 1847	.....	400	Also 50 barrels sperm oil.
Do	do	119	Desolation Island	Sept. 7, 1849	May 10, 1851	.....	183	Tender to Julius Cæsar.
Garland	do	60	do	June 17, 1844	.....	.....	.....	Tender to Charles Carroll; lost on Desolation in 1848.
Hand	do	86	South Atlantic	June 6, 1840	Apr. 30, 1842	.....	.....	Tender to Columbia.
Do	do	86	do	June 29, 1842	Apr. 10, 1844	.....	300	Do.
Do	do	86	Desolation Island	June 5, 1844	.....	.....	260	Lost near home on No Man's Land, 1846.
Jason	Ship	335	do	Apr. 9, 1846	May 20, 1848	.....	1,000	Also whale oil and bone.
Julius Cæsar	do	347	do	Sept. 7, 1849	May 10, 1851	.....	1,000	Do.
Leader	Schooner	130	South Seas	July 6, 1845	.....	.....	.....	Seized at Chiloe for infringement of law in 1846; released in 1847 and sold at Valparaiso.
Newport, R. I.								
Ohio	Schooner	....	South Seas	July 9, 1841	.....	.....	.....	No report.
Stonington, Conn.								
Pacific	Schooner	....	South Seas	June 10, 1843	Apr. 3, 1844	1,500	.....	
Do	do	....	do	Aug. 8, 1844	May 12, 1845	1,500	.....	

ANTARTIC SEALING VOYAGES FROM 1840 TO 1850—Continued.

[Arranged alphabetically by vessel's name.]

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
New London, Conn.								
Peruvian	Ship	388	Desolation Island	Aug. 14, 1848	Aug. 8, 1850	.....	1,300	Also whale oil and bone.
Stonington, Conn.								
Richard Henry	Bark	127	South Seas	July 20, 1843	.....	.....	.....	Lost at South Shetlands, 1845.
New London, Conn.								
Shaw Perkins	Sloop	55	South Atlantic	June 6, 1840	Apr. 16, 1842	.....	.....	Tender to Columbia.
Do	do	55	do	June 29, 1842	Apr. 10, 1844	.....	115	Do.
Do	do	55	Desolation Island	June 5, 1844	.....	.....	.....	Lost at Desolation with crew of eight men in 1847.
Stonington, Conn.								
United States	Ship	244	South Seas	Apr. 27, 1842	Apr. 19, 1843	.....	2,000	Also sperm oil.
Do	do	244	do	June 19, 1843	May 30, 1844	.....	1,600	Also 110 barrels sperm oil.
Do	do	244	do	Dec. 4, 1847	May 3, 1849	.....	1,800	
Do	do	244	Crozet Islands	June 18, 1849	May 24, 1851	.....	845	
Mystic, Conn.								
Uxor	Brig	96	South Atlantic	July 22, 1840	Jan. 1, 1841	.....	400	Sailed again in 1841 and was lost on Crozet Islands October 28.
New London, Conn.								
White Oak	Bark	292	South Seas	Apr. 10, 1841	Mar. 15, 1843	500	.....	Also whale and sperm oil.

ANTARCTIC SEALING VOYAGES FROM 1850 TO 1860.

[Arranged alphabetically by vessel's name.]

Mystic, Conn.								
Aeronaut	Ship	265	South Seas	Aug. 9, 1852	May 22, 1853	.....	1,188	
Do	do	265	do	July 28, 1853	July 13, 1854	.....	490	
New London, Conn.								
Alert	Bark	396	Desolation Island	Oct. 7, 1853	June 18, 1856	.....	2,300	Also whale oil and bone.
Do	do	396	do	July 23, 1856	May 31, 1858	.....	2,900	Do.
Do	do	398	Heard's Island	June 29, 1858	May 14, 1860	.....	3,237	Do.
Fairhaven, Mass.								
Alfred	Schooner	180	Heard's Island	Aug. 16, 1856	.....	.....	.....	Tender to Samuel Robertson; lost at Heard's Island December 29, 1856.
New London, Conn.								
Atlantic	Schooner	130	Desolation Island	July 19, 1856	Jan. 12, 1857	.....	.....	Tender to larger vessel.
Do	do	130	Heard's Island	July 19, 1857	July 28, 1858	.....	283	Withdrawn, 1859.
Atlas	do	81	Desolation Island	Aug. 12, 1851	June 14, 1856	.....	115	Tender to larger vessel.
Do	do	81	do	July 31, 1856	.....	.....	.....	Sold at Cape Good Hope.
Nantucket, Mass.								
Catawba	Ship	325	South Seas	Sept. 2, 1857	Apr. 19, 1859	.....	2,327	Also sperm oil.
New London, Conn.								
Corinthian	Ship	505	Desolation Island	Aug. 19, 1851	June 24, 1853	.....	3,500	Also whale oil and bone.
Do	do	505	do	Nov. 15, 1853	June 9, 1856	.....	2,600	Do.
Do	do	505	Heard's Island	July 19, 1856	Apr. 10, 1858	.....	2,700	Do.
Mystic, Conn.								
Cornelia	Schooner	197	Heard's Island	Aug. 9, 1857	June 6, 1858	.....	1,092	
Do	do	197	do	July 14, 1858	May 12, 1860	.....	1,600	Also whale oil and bone.
Warren, R. I.								
Delphia	Bark	325	Heard's Island	Sept. 30, 1858	.....	.....	.....	Lost in 1859; no report of oil.
New London, Conn.								
Dove	Bark	151	Desolation Island	Aug. 11, 1859	July 15, 1861	.....	933	One of the "Stone fleet" sunk at Charleston, S. C.
Nantucket, Mass.								
Eliza Jane	Schooner	130	South Seas	Aug. 15, 1857	Apr. 9, 1859	.....	550	Tender to Catawba.

ANTARCTIC SEALING VOYAGES FROM 1850 TO 1860—Continued.

[Arranged alphabetically by vessel's name.]

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
New London, Conn.								
E. B. Sawyer	Schooner	126	Heard's Island	Aug. 13, 1858	Apr. 10, 1858		512	
Do	do	126	do	June 10, 1858	May 16, 1860		388	
Exile	do	83	Desolation Island	Aug. 18, 1852	June 12, 1859		212	Tender to larger vessel.
Do	do	83	do	Sept. 1, 1859				Lost at Heard's Island in 1860.
Stonington, Conn.								
Flying Cloud	Schooner	100	Cape Horn	July 20, 1852	May 7, 1853		40	
Do	do	100	do	July 28, 1853				No report.
Mystic, Conn.								
Frank	Schooner	200	Heard's Island	June 18, 1858				Lost at Heard's Island in February, 1859; crew saved.
New London, Conn.								
Franklin	Schooner	119	Desolation Island	July 15, 1859	June 4, 1862		500	Also whale oil and bone.
H. Brewer	Bark	293	do	Sept. 29, 1852	July 15, 1854		1,200	Do.
Do	do	293	do	Aug. 19, 1854			600	Condemned at St. Helena, February 19, 1857; cargo sent home.
Nantucket, Mass.								
Homer	Brig	140	South Atlantic	July 6, 1858	Oct. 4, 1859		325	
New London, Conn.								
Isaac Hicks	Ship	495	Heard's Island	July 19, 1856	June 2, 1858		4,275	Also whale oil and 600 pounds bone.
Do	do	495	do	July 20, 1858	Apr. 30, 1861		3,500	Also whale oil and bone.
J. E. Comstock	Schooner	75	do	May 30, 1857				Tender to Zoe.
John E. Smith	do	119	do	Aug. 4, 1851	June 26, 1854		205	Also whale oil and bone.
Julius Cæsar	Ship	347	Desolation Island	Aug. 18, 1851	June 4, 1853		1,500	Do.
Do	do	347	do	Sept. 3, 1853	Apr. 7, 1856		1,000	Do.
Laurens	do	420	Heard's Island	Sept. 17, 1855	May 8, 1857		4,700	
Do	do	420	do	Aug. 4, 1857	Aug. 15, 1858		4,196	
Mystic, Conn.								
Lion	Schooner	150	South Seas	Aug. 18, 1852	July 10, 1853			Tender to Aeronaut.
Do	do	150	do	July 28, 1853				Lost on English Bank March 22, 1854.
New London, Conn.								
Marcia	Schooner	128	Desolation Island	Aug. 4, 1851	May 8, 1853		629	Tender to larger vessel.
Do	do	128	do	Aug. 2, 1853	June 16, 1856		218	
Mary Powell	do	240	Heard's Island	June 28, 1858			1,000	Lost at Heard's Island October 21, 1859, with 400 barrels oil.
Fairhaven, Mass.								
Oxford	Schooner	130	Desolation Island	July 17, 1857	Apr. 11, 1860		580	Tender to Samuel Robertson. Reported ten sealing vessels at Desolation Island.
New London, Conn.								
Pacific	Schooner	161	Heard's Island	July 12, 1856	May 12, 1858		991	
Do	do	161	do	July 7, 1858	Apr. 16, 1861		651	
Peruvian	Ship	388	Desolation Island	Sept. 11, 1850	July 21, 1852		1,800	
Do	do	388	do	Aug. 19, 1852	July 6, 1854		1,400	
Pioneer	Bark	235	Heard's Island	Oct. 4, 1855	June 13, 1857		1,200	Also whale oil.
Do	do	235	do	July 9, 1857	July 10, 1859		2,398	
R. B. Coleman	Schooner	115	do	June 25, 1859				Lost at Heard's Island in 1860.
Mystic, Conn.								
Romulus	Ship	365	Desolation Island	June 3, 1858	May 9, 1860		2,528	
Fairhaven, Mass.								
Samuel Robertson	Ship	421	Desolation Island	Aug. 23, 1856	Oct. 17, 1858		3,800	
Stonington, Conn.								
Sarah E. Spear	Bark	150	South Shetlands	Sept. 27, 1852	May 13, 1853	500	530	
Do	do	150	do	July 28, 1853				No reps
New London, Conn.								
Silver Cloud	Schooner	140	Desolation Island	June 10, 1858	Nov. 17, 1859		510	

ANTARCTIC SEALING VOYAGES FROM 1850 TO 1860—Continued.

[Arranged alphabetically by vessel's name.]

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur seal skins.	Barrels of sea elephant oil.	Remarks.
Stonington, Conn.								
Tebos	Schooner	143	South Seas	June 9, 1853	Apr. 12, 1854	.....	600	
United States	Bark	244	do	Aug. 8, 1851	June 5, 1852	.....	1,400	Also whale oil and bone.
Do	do	244	do	July 29, 1852	May 10, 1853	.....	2,029	
Do	do	244	do	July 28, 1853	July 6, 1854	.....	600	
Warren, R. I.								
William Wilson	Ship	375	Desolation Island	Oct. 3, 1857	Jan. 4, 1861	.....	45	Also good cargo of whale oil and bone.
Mystic, Conn.								
Wilmington	Schooner	100	South Seas	July 28, 1853	.....	.....	.....	No report.
New London, Conn.								
Zoe	Brig	197	Heard's Island	Oct. 22, 1855	Apr. 4, 1857	.....	1,299	Also 11 barrels sperm oil.
Do	do	197	do	June 10, 1857	Apr. 15, 1859	.....	1,280	

ANTARCTIC SEALING VOYAGES FROM 1860 TO 1870.

[Arranged alphabetically by vessel's name.]

New London, Conn.								
Alert	Bark	398	Heard's Island	July 24, 1860	July 12, 1862	.....	3,090	Burned by privateer Alabama in 1863.
Arab	do	276	do	Dec. 23, 1862	June 8, 1864	.....	2,241	Also whale oil and bone.
Do	do	276	do	Aug. 4, 1864	June 23, 1865	.....	1,692	Do.
Do	do	276	do	Aug. 9, 1865	June 6, 1866	.....	2,064	Do.
Atlantic	Schooner	130	do	July 20, 1860	Sept. 9, 1861	.....	.....	Tender to Alert.
Charles Colgate	do	250	Desolation Island	June 4, 1860	May 20, 1862	.....	1,289	
Do	do	250	do	May 23, 1863	Apr. 9, 1865	.....	1,265	
Do	do	250	do	June 5, 1865	May 28, 1867	.....	1,800	Also whale oil and bone.
Do	do	250	Heard's Island	June 22, 1865	May 4, 1869	.....	1,000	Do.
Do	do	250	Desolation Island	June 13, 1869	Apr. 18, 1871	.....	1,114	
Mystic, Conn.								
Cornelia	Schooner	197	Heard's Island	June 16, 1860	June 17, 1862	.....	988	
New Bedford, Mass.								
Eliza Jane	Schooner	89	Cape Horn	Oct. 24, 1861	.....	.....	.....	Lost on east coast of Patagonia August 5, 1862.
New London, Conn.								
Emma Jane	Schooner	86	Desolation Island	July 6, 1867	Apr. 26, 1872	.....	80	Also whale oil and bone.
E. R. Sawyer	do	126	do	June 27, 1860	July 2, 1862	.....	493	
Do	do	126	Heard's Island	July 24, 1862	May 25, 1864	.....	556	
Do	do	126	do	July 14, 1864	.....	.....	.....	Lost at Heard's Island September 17, 1866.
Golden West	do	144	Desolation Island	Nov. 30, 1865	May 25, 1868	.....	1,800	Also whale oil and bone.
Do	do	144	do	June 30, 1868	Apr. 18, 1871	.....	849	
Lydia	Bark	351	Heard's Island	Aug. 18, 1864	May 17, 1865	.....	1,734	
Provincetown, Mass.								
M. E. Simmons	Schooner	160	Desolation Island	Aug. 16, 1865	May 31, 1868	.....	1,659	
New London, Conn.								
Pacific	Schooner	161	Desolation Island	June 17, 1862	.....	.....	.....	Lost at Heard's Island February 1, 1863; sent home 1,500 barrels oil.
Roman	Ship	350	do	Aug. 22, 1866	June 2, 1867	.....	1,584	Also whale oil and bone.
Do	do	350	Heard's Island	Aug. 12, 1867	June 6, 1868	.....	1,926	Also sperm oil.
Do	do	350	Desolation Island	Aug. 13, 1868	May 18, 1869	.....	1,500	Also whale oil and bone.
Do	do	350	do	June 25, 1869	May 22, 1870	.....	1,800	Also sperm and whale oil and bone.
Roswell King	Schooner	194	do	Aug. 28, 1864	Apr. 30, 1867	.....	1,200	Also whale oil and bone.
Do	do	194	Heard's Island	July 13, 1867	May 19, 1870	.....	2,000	Do.
Silver Cloud	do	140	Desolation Island	June 12, 1860	.....	.....	.....	Lost in 1862 with all on board; sent home 760 barrels sea-elephant oil.
Somerset	Bark	201	do	June 4, 1864	.....	.....	.....	Lost at Desolation Island August 26, 1864.

ANTARCTIC SEALING VOYAGES FROM 1870 TO 1880.

[Arranged according to year of sailing.]

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
1870–'72.								
New London, Conn.								
Flying Fish	Schooner	75	South Georgia	July 5, 1870	Apr. 18, 1871	.....	.....	Bought from Gloucester; returned home clean; tender to Trinity.
Francis Allyn	...do	107	South Atlantic	June 30, 1870	June 6, 1872	.....	800	Brought home also whale and sperm oil.
Roman	Ship	350	Heard's Island	June 22, 1870	May 8, 1871	.....	1,500	
Roswell King	Schooner	134	...do	June 29, 1870	Apr. 26, 1872	.....	1,750	
Trinity	Bark	417	South Georgia	July 23, 1870	Apr. 21, 1871	500	210	
Charles Colgate	Schooner	250	Desolation Island	June 27, 1871	Apr. 11, 1873	.....	1,500	Brought home also whale oil.
Francis Allyn	...do	107	South Atlantic	July 22, 1871	June 6, 1872	5,500	395	Brought home also 19 barrels sperm oil.
Franklin	...do	119	...do	Aug. 26, 1871	June 9, 1872	.....	.....	Returned clean; tender to Peru.
Golden West	...do	144	...do	Aug. 7, 1871	May 14, 1872	4,000	400	
Peru	Bark	259	...do	Aug. 17, 1871	June 14, 1872	2,730	187	Boat's crew lost by boat capsizing, March 2, 1872; withdrawn 1874.
Roman	Ship	350	Heard's Island	June 26, 1871	June 9, 1872	.....	1,518	Brought home also 21 barrels sperm oil.
Emma Jane	Schooner	86	...do	June 27, 1872	May 2, 1877	.....	800	Tender to Roman.
Florence	...do	56	South Atlantic	Aug. 6, 1872	April—, 1876	10,000	.....	Bought from Gloucester, Mass.; when nineteen months from home had taken only 9 skins, but between November, 1873, and the beginning of 1876, 10,000 skins were taken, many of them being shipped to London from South American ports. The total value of the cargo was something over $100,000.
Flying Fish	...do	75	...do	Aug. 10, 1872	Apr. 15, 1874	3,000	53	
Francis Allyn	...do	107	...do	Aug. 20, 1872	May 10, 1873	3,000	32	
Franklin	...do	119	...do	Aug. 5, 1872	May 13, 1873	1,500	60	
Golden West	...do	144	...do	Aug. 15, 1872	Apr. 6, 1873	3,500	.....	
Nile	Ship	269	...do	Sept. 8, 1872	May 5, 1873	2,000	308	Brought home also 76 barrels sperm oil.
Roman	...do	350	Heard's Island	July 16, 1872	Mar. 31, 1873	.....	1,225	
Stonington, Conn.								
Thomas Hunt	Schooner	62	South Atlantic	July 31, 1872	Apr. 20, 1873	1,400	.....	Bought from Gloucester, Mass.; stocked, $15,000.
New York, N. Y.								
L. P. Simmons	Schooner	89	South Atlantic	July 25, 1872	May 8, 1873	300	.....	Bought from Provincetown, 1872; fitted from New London.
1873.								
New London, Conn.								
Charles Colgate	Schooner	250	Heard's Island	June 18, 1873	Apr. 27, 1875	.....	900	Brought home also 400 pounds whalebone
Flying Fish	...do	75	South Shetlands	July 23, 1873	Apr. 16, 1874	2,500	53	
Francis Allyn	...do	107	...do	July 25, 1873	June 14, 1875	500	.....	
Franklin	...do	119	...do	July 23, 1873	May 13, 1874	615	267	
Golden West	...do	144	...do	July 24, 1873	Apr. 20, 1874	400	112	Brought home also 31 barrels sperm oil.
Roman	Ship	350	Heard's Island	May 17, 1873	Apr. 17, 1874	.....	1,441	Brought home also some whalebone.
Roswell King	Schooner	134	...do	Aug. 5, 1873	Apr. 23, 1875	.....	550	Brought home also whale oil and bone.
Stonington, Conn.								
Thomas Hunt	Schooner	62	South Shetlands	July 22, 1873	May 10, 1874	1,400	.....	Lost seven men; stocked $33,000.
New York, N. Y.								
L. P. Simmons	Schooner	89	South Shetlands	Aug. 2, 1873	May 7, 1875	1,000	.....	Belonged to New London.
1874.								
New London, Conn.								
Franklin	Schooner	119	South Shetlands	July 15, 1874	Apr. 29, 1875	1,300	160	
Golden West	...do	144	...do	July 16, 1874	May 4, 1875	1,578	50	
Roman	Ship	350	Heard's Island	June 22, 1874	May 12, 1876	.....	1,300	Brought home also 50 barrels sperm oil; sold to New Bedford, 1875.
Stonington, Conn.								
Charles Shearer	Schooner	100	South Shetlands	July 23, 1874	Apr. 28, 1875	1,600	.....	Bought from Gloucester, Mass.; stocked $15,000; lost entire ground tackling at Cape Horn.
Thomas Hunt	...do	62	South Shetlands and Cape Horn	July 22, 1874	Apr. 2, 1875	1,800	.....	Only one skin secured from South Shetlands, on account of ice; stocked $16,000.

ANTARCTIC SEALING VOYAGES FROM 1870 TO 1880—Continued.

(Arranged according to year of sailing.)

Name and home port.	Rig.	Tons.	Sealing ground.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
1875.								
New London, Conn.								
Charles Colgate	Schooner	250	Heard's Island	June 15, 1875	May 2, 1877	.....	840	
Flying Fish	...do	75	...do	July 7, 1875	Apr. 2, 1876	.....	200	
Francis Allyn	...do	107	South Atlantic	July 27, 1875	May 28, 1877	5,000	.....	Also 500 hair-seal skins.
Golden West	...do	144	...do	June 30, 1875	June —, 1876	2,200	.....	
L. P. Simmons	...do	89	...do	July 13, 1875	Apr. 1, 1876	500	500	
Roswell King	...do	134	Heard's Island	June 29, 1875	May 18, 1877	.....	1,700	
Stonington, Conn.								
Charles Shearer	Schooner	100	Cape Horn	June 16, 1875	May 16, 1876	2,700	.....	Stocked $16,000; lost five men by drowning and two were massacred by Indians; vessel, with difficulty, saved from being captured.
1876.								
New London, Conn.								
Florence	Schooner	56	South Atlantic	July 22, 1876	Apr. 6, 1877	500	.....	This vessel was employed on the Howgate expedition to Cumberland Inlet in 1877–'78.
Flying Fish	...do	75	...do	June 29, 1876	May 2, 1877	.....	.....	Tender to Trinity; returned clean.
Golden West	...do	144	...do	Aug. 8, 1876	Apr. 20, 1877	808	550	
L. P. Simmons	...do	89	...do	June 27, 1876	Mar. 20, 1877	1,000	500	
Trinity	Bark	317	...do	July 1, 1876	Apr. 21, 1877	900	2,000	
Stonington, Conn.								
Charles Shearer	Schooner	100	South Atlantic	July 8, 1876	May 20, 1877	400	50	Stocked $4,500.
Thos. Hunt	...do	65	...do	June 21, 1876	Mar. 20, 1878	5,000	.....	Stocked $25,000.
1877.								
New London, Conn.								
Charles Colgate	Schooner	250	South Atlantic	Aug. 1, 1877	Apr. 6, 1878	.....	120	
Flying Fish	...do	75	...do	June 28, 1877	May 1, 1878	.....	.....	Tender to Trinity; returned clean.
Francis Allyn	...do	107	Heard's Island	Aug. 28, 1877	May 13, 1879	.....	1,500	
Golden West	...do	144	South Atlantic	June 28, 1877	May 2, 1878	50	550	
Roswell King	...do	134	Desolation Island	Aug. 24, 1877	June 27, 1879	.....	1,800	
Trinity	Bark	317	South Atlantic	July 10, 1877	May 2, 1878	.....	1,500	
Stonington, Conn.								
Charles Shearer	Schooner	100	South Atlantic	July 3, 1877	.....	.....	.....	Lost in neighborhood of South Shetlands.
New York, N. Y.								
Eothen	Schooner	101	South Atlantic	July 22, 1877	—— —, 1878	75	200	
1878.								
New London, Conn.								
Flying Fish	Schooner	75	South Atlantic	June 24, 1878	.....	.....	.....	Abandoned October 5, 1878, off Cape Horn.
Golden West	...do	144	...do	July 27, 1878	.....	8,000	.....	Cargo sent home; vessel condemned at Sandy Point, 1880.
L. P. Simmons	...do	89	Cape Horn	Dec. 28, 1878	Oct. 1881	.....	.....	Sent home 3,700 fur-seal skins up to January 1, 1881.
Trinity	Bark	317	South Georgia	July 2, 1878	May 24, 1879	.....	250	
Stonington, Conn.								
Thomas Hunt	Schooner	65	South Atlantic	May 21, 1878	Apr. 17, 1879	2,200	.....	Stocked $22,000; brought home 860 skins, valued at $8,000 taken at Diego Ramirez by boat's crew of lost schooner Charles Shearer.
1879.								
New London, Conn.								
Francis Allyn	Schooner	104	South Atlantic	July 22, 1879	Oct. 1881	.....	.....	Up to last advices in 1881 had sent home 2,000 Cape Horn skins.
Mary E. Higgins	...do	86	Desolation Island	July 10, 1879	May 1, 1880	2,000	.....	
Stonington, Conn.								
Express	Schooner	79	South Shetlands	June 16, 1879	Apr. 18, 1880	695	.....	Stocked $14,000.
Henry Crowninshield	Brig	176	South Seas	Oct. 7, 1879	Oct. 1881	.....	.....	Arrived at Montevideo in distress in April 1880, and sent home 640 fur-seal skins, valued at $7,500. During season of 1881 sent home 1,310 Cape Horn skins.
Thomas Hunt	Schooner	76	South Shetlands	June 26, 1879	Apr. 18, 1880	1,025	.....	Stocked $15,000.

ANTARCTIC SEALING VOYAGES FROM 1870 TO 1880—Continued

(Arranged according to year of sailing.)

Name and home port.	Rig.	Tons.	Sealing grounds.	Sailed.	Returned.	Number of fur-seal skins.	Barrels of sea-elephant oil.	Remarks.
1880.								
New London, Conn.								
Mary E. Higgins	Schooner	98	Cape Horn	June 8, 1880	Out, 1882			Season of 1881 forwarded 900 Cape skins to London; season of 1882, up to May had forwarded 1,200 Cape seals.
Pilot's Bride	do	194	Desolation Island	Apr. 27, 1880				Sent home in 1881 1,400 South Sea skins, and 100 barrels of sea-elephant oil. Vessel not heard from up to May, in 1882, since last shipment, and supposed to be lost.
Roswell King	do	134	do	May 11, 1880	Apr. 27, 1881		500	Sailed for Cumberland Inlet, whaling, in June, 1881.
Trinity	Bark	317	Heard's Island	June 1, 1880				Lost at Heard's Island. The United States Government steamer Marion sent, in November, 1881, to rescue the crew. All but three of the entire crew saved and arrived at Cape Town, Africa, in the Marion in the spring of 1882.
Wanderer	Schooner	151	South Atlantic and Cape Horn.	Aug. 12, 1880				Forwarded during 1881, 80 South Sea skins and 230 Cape skins. Vessel lost on Cape Horn in October, 1881, with 160 barrels sea-elephant oil, and 12 seal skins on board.
Stonington, Conn.								
Express	Schooner	70	Cape Horn	July 8, 1880	Out, 1882			During season of 1881 forwarded 730 Cape skins to London, and during season of 1882 up to May 30, had forwarded 860 Cape skins.
Thomas Hunt	do	70	do	June 3, 1880	Out, 1882			During season of 1881 forwarded to London 750 Cape skins, and during season of 1882, up to May 30, had forwarded to London 2,200 Cape skins.
New Bedford, Mass.								
Adelia Chase	Schooner	85	South Atlantic	Feb. 16, 1880	Out, 1882			During season of 1881 forwarded 80 South Sea skins and 160 barrels of sea-elephant oil, and during season of 1882, up to May 30, had taken 600 Cape seal.

7. NARRATIVE OF AN ANTARCTIC SEALING VOYAGE IN THE SHIP NEPTUNE, 1796 to 1799.

Through the kindness of Mr. Charles Peterson, of New Haven, Conn., we are permitted to give the following extracts from letters written by Mr. Eben Townsend, supercargo of the ship Neptune, of New Haven, on her voyage to the fur-seal islands and China. The voyage lasted from November 29, 1796, to July 11, 1799. The Neptune was built in 1796, measured 353 tons, and was owned by several merchants of New Haven. The return cargo from China was a very valuable one, consisting of teas, silks, nankeens, and chinaware, and paid United States customs duties amounting to $55,438.71. Mr. Townsend says:

It is my intention to write you every month the principal events during the voyage which I have undertaken in the ship Neptune, Capt. Daniel Greene, on a sealing voyage into the Pacific Ocean and to China. This I can very conveniently do by a recapitulation from my daily journal of such events as are in any way interesting and would save you the trouble of searching a dry sea journal in which you would not look in expectation of many incidents. We sailed from New York on the 29th of November. You will remember that I left New Haven about the 10th with the ship's crew. I did not expect to leave you the evening that I did, but having hired a vessel to take that part of the crew, being about twenty pretty crazy fellows, I dare not trust them alone. Our entire crew consisted of thirty-six men and boys.

On the 2d of January the Neptune arrived off Buena Vista, Cape de Verds. Saw a ship and brig standing off and on. Boarded the brig, which was commanded by Captain Hathaway. The ship was an Englishman under American colors and hailed from Philadelphia, commanded by Captain French. As the surf was here so high that there would be great difficulty in taking off salt, we proceeded to the Isle of May, and the next day on arriving there found the ship Eliza, of Boston, Captain Jones, from Bremen, taking in salt, which we found rather dearer than at Buena Vista. We took on board 8½ moy of salt, each moy 60 bushels, at $5, which is about 8 cents a bushel. Paid also a duty of

half a dollar per moy and $12 anchorage. The salt ponds are about 2 miles from the landing and the salt brought down on jackasses.

A ship from Nantucket arrived, Captain Fosdick, bound round Cape Horn on a whaling voyage. He had experienced rough weather and had come in to refit, having stove his try-works.

SEALING AT THE FALKLAND ISLANDS AND PATAGONIA.

Crossed the equator on the 18th of January. On the 22d of February reached the Falkland Islands, eighty-five days from New York. On this day at 6 a.m. made the land bearing east 8 leagues distance, being the Guard and Steeple Jason Islands; got out our boats and all but nine of the crew went ashore and returned in the afternoon in high spirits. Mr. Griswold, our first officer, said the seal appeared very plenty and no crew there. We almost felt sure of our voyage. They soon packed up and were again on shore and we bore away with the ship for the harbor and anchored at dark at the mouth of it. We saw a brig in sight in another harbor about 4 miles from us. This we did not like. Next morning we warped into the harbor. The captain of the brig came on board. It proved to be an English brig, Captain Morse, after a cargo of hair seal and oil from the sea-elephant. As he did not interfere with our voyage we were glad to see him. We soon got our shallop frame landed and went to work setting it up. This frame was brought from the United States.

On the 3d of March Mr. Griswold came in from the Jason Islands with a boat's crew, and, much to our disappointment, says there are very few seals. We drove on with our shallop as fast as possible, as she was much wanted to search the islands.

I have commenced my attack on the seal. It is uncommon to see them in this harbor, but one day I saw a hair-seal swimming near where we were at work on the shallop. As we had frequent opportunities to kill wild hogs we kept a loaded musket handy. I took it up and put the ball just through the back part of the head of the seal. He was so badly wounded that he could not well get under water, but floundered about at a great rate. I jumped into the yawl and attacked him with my oar. Captain Greene laughed at me and told me to haul him into the boat. As he was a stout fellow I did not much like it, but reflecting that it would not do to come so far for seals and then be afraid of them, I watched my chance, and getting hold of one of his hind flippers, I very suddenly jerked him into the boat. He now floundered worse than before. I punched him with the end of the oar, but for some time I did not know which would keep possession of the boat, and I believe if no one had seen me I would have quit and swum ashore; but at last I conquered the rascal. This pleased Captain Greene very much.

Captain Morse, in the brig that had been here with us, left on the 17th of March for Big West Harbor, where he met Capt. David Bunker, in a bark from Hudson, N. Y., and Captain Williams, in a brig from New York. The captains of both these vessels visited us. Both were after elephant oil and hair and fur seal skins. Captain Bunker had been in these islands four months and had taken only 150 barrels elephant oil and six hundred hair-seal skins. Captain Williams had been here eight months and had on board seven thousand fur and twelve thousand hair skins. They are to proceed to the coast of Patagonia and after that to New York.

March 26 we launched our shallop, having set her up and finished her in thirty-three days. She measures about 30 tons. The 29th Captain Greene sailed in the shallop for Jason Islands, leaving only the captain, carpenter, doctor, and myself on the ship.

On the 24th of April we nearly lost the shallop, which would have been a very serious loss. A strong breeze hove a heavy sea into Steeple Jason Cove. The shallop broke off the palms of both anchors and went on shore. The men got her off and at a great hazard got to sea, where they found they could not keep her free of water long enough to make this harbor. They therefore run her into Grand Jason, where they were just able to get her into 2 fathoms of water before she sunk. They afterwards got her up and by nailing canvas over where she had bilged they were able by hard pumping and bailing to get her into this harbor, where we got her on shore and repaired her.

May 21 Captain Greene, having been down to Port Egmont in the shallop, returned with four hogs and forty geese which they had killed down there. They found lying there Capt. David [or Paul] Bunker in a ship from Hudson. She arrived the 8th of January, and her tender—a North River sloop of 50 tons, in charge of his brother, Capt. Prince Bunker—arrived on the 20th, after a passage of one hundred and sixty or one hundred and seventy days. They had but 50 barrels of oil and two thousand fur and hair skins.

On the 7th of July there was thin ice in a bucket of water on deck for the first time.

July 26 the shallop again arrived in distress, having been driven on shore in a gale at the Grand Jason. She got about half full of water. We got her ashore and repaired her by mending her keel, putting in a strake or two and a number of graving pieces in her bottom, and giving her a new rudder and stern-post. After we had repaired her, in heaving her off we broke her best anchor in three pieces and after getting her into the water found she leaked rather bad. We hove her out again and partially stopped the leak, but she has never since been as tight as before she got ashore.

On August 22 Captain Bunker came up from Port Egmont with his sloop tender and agreed with Captain Greene that they make up a crew and go on to the coast of Patagonia in the sloop and search for seal. Accordingly, on the 26th, Captains Greene and Bunker, with twenty-four men sailed in the sloop Betsey with the understanding that if we heard nothing from them in six weeks, I was to send our shallop over and look for them as they may have got their vessel on shore. After being absent about thirty-three days they returned in a passage of twelve days, having left a sealing crew at Cape Mattass, with a whale-boat to shift along the coast if necessary.

On their first arrival on the coast they found a few Spaniards, sealing on an island near the mouth of Port Desire River, who told them there would be no difficulty in getting permission from the commandant at Port Desire to seal.

Captains Greene and Bunker therefore went up to Port Desire with a whale-boat's crew about 7 leagues, leaving the sloop at anchor. When they got to the garrison, after some few questions they were told by the Spaniards that they believed them to be Englishmen, and as Spain was at war with England they must consider themselves prisoners. A boat with twelve armed men was accordingly dispatched to bring up the sloop. They remonstrated and proposed to remain as hostages and send down for the vessel's papers, but all to no purpose. As this would ruin all our voyages—for they said that they must be sent to the River de la Plata for trial, as English and American papers were so much alike—they were therefore determined to make a bold push. The Spaniards were determined to prevent it, and accordingly stationed an armed barge down the river a little below the garrison. It looked very dark, for they were placed inside the garrison, and there appeared no chance for escape. However, Greene, who you know is resolute and hawk-eyed, gave a word of caution to keep together and be ready.

The Spaniards always keep a padre or priest in their garrisons. When their prayer bell rang at 8 o'clock in the evening, and they had all got into a small church which was inside the garrison, the wished for time offered. They started and were soon hold of their whale-boat which had been hauled up. The movement was so quick that it was not known whether an alarm had been given and after they were afloat and it was too dark to be fired at there was little danger but that they could row two feet to one of any boat rowed by the Spaniards. They muffled their oars and got alongside the sloop about midnight, jumped on deck and got possession of the arms, the soldiers being asleep. They then made the soldiers get into their own boat, and after knocking out the flints returned them their muskets and treated them each with a drink of grog. The soldiers were told to tell their commandant that he did not know how to keep Yankees. They then got under way and ran to the northward.

On the 4th of October our shallop came in with all hands from the islands and we began preparing the ship to leave here by getting our topmasts on end and the rigging overhead, as we have had the ship completely stripped since we have been here at the Falklands. On the 11th of October we unmoored and found our cables in good order. Got under way, and running into Big Harbor came to for one night. On the 12th we anchored in the harbor, and, after mooring the ship, prepared for a sealing cruise in the shallop. On the 16th the shallop sailed for a fortnight's cruise, leaving me alone on board, but as it was a good harbor and the ship had good cables and anchors, I felt safe. I was then captain, mate, and all hands. As I had enough to do I was not so lonesome as you may imagine. I was left with a dog, a cat, and five kittens, but the dog killed the cat, and the kittens being but a day old, died also. I never felt the loss of a cat so much.

On the 26th the shallop returned with about seven hundred seal-skins. Had been on a number of islands and found generally that the seal were off. November 9 Captain Greene again sailed in the shallop, and on the 13th returned with two thousand skins which they took on Bird Keys. At New Island he found the ship Betsey, Capt. Edmund Fanning, his first officer Caleb Brintnall, four months from New York, by whom we received letters which were very acceptable. They were also on a sealing voyage. Also ship Lydia, Obed Fitch master, four months from New Bedford, and the ship Olive Branch, Obed Paddock, five months from Nantucket, bound round Cape Horn for sperm oil.

On the 14th of November Captain Bunker arrived from the main in the sloop Betsey, five days passage from Cape Mattas with but two thousand skins. He had been unfortunate. Had his boat stove by a whirlwind and had carried away his mast head.

The sloop Betsey sailed for Port Egmont on the 18th, which closed our partnership. Captain Greene made a cruise of a few days in the shallop to the Bashee Islands, in latitude 52° 55′; found no seal of consequence on the island. * * *

Two or three days after Captain Bunker sailed we found on the island a suitable mast for the sloop Betsey, which would be very important for Captain Bunker. Accordingly Captain Greene took the mast in tow with the shallop and went to Port Egmont and gave it to Captain Bunker. Captain Worth in the brig Garland was also lying at Port Egmont and getting elephant oil.

On December 6th Captain Greene sailed in the shallop for New Island expecting to find the Betsey still there, but she had gone. Found there just arrived the ship Maria, Capt. Benjamin Paddock, eighty-four days from Nantucket, bound round Cape Horn for sperm oil.

On the 16th we lost two men by the upsetting of the whale-boat in a tide up.

December 22 Capt. Bazilla Worth, in the brig Garland, and Captain Bunker, in his sloop Tender, came up from Port Egmont and anchored at Island Harbor, the other side of this island, and visited us on board. Captain Worth was on his way to the northwest coast of America and Canton. He thinks to make up his cargo of skins and meet a vessel at the Sandwich Islands, to which he will deliver his cargo and receive from her some "trade" for the northwest coast. The vessel he calculates to meet belongs to the same owners. He calculates that his oil will bring £45 sterling per per ton of 8 barrels or 240 gallons.

The Neptune accompanied by her shallop left the Falklands for Patagonia December 24, having taken thus far thirty thousand skins.

On the 28th of December we struck soundings on the west coast of Patagonia in latitude 49° 38′ south, 40 fathoms, white sand, off St. Julian's Bay. Having experienced very bad weather, in which one shallop made "good weather," on the 29th examined the shore with a whale-boat, found an island in latitude 47° 55′ with about two thousand hair-seal, which we did not want. The two following days found several islands with hair-seal, but no fur-seal. On the 31st we made a cruise in the whaleboat and found a small bunch of dry rocks with about five hundred fur-seals on them. January 1, 1798, we were off Port Desire, and landed on the same island where the captains in the sloop had before landed.

No Spaniards were there, and the fur-seals were very tempting. We held a council of war and determined to take them. The anchorage was bad and some distance from the island, it being also rather an open roadstead, but having started on a voyage of hazard it would not do to be checked by trifles. We therefore ran into a bay, about 4 leagues from the island, and anchored in latitude 47° 43′, moored the ship, struck yards and topmasts, and got our guns on deck and loaded them for the first time; sent a boat up in the night to reconnoiter the garrison, and found there was no vessel of war there, after which we commenced sealing on a point of the harbor where we lay. Soon after four men were seen on shore abreast of the ship. I landed with the boat, as it would not do for the captain of the ship to show himself. They proved to be the commandant of the garrison with three armed soldiers, who with much importance demanded what we were doing there. I plead ignorance of the country, having come in by accident in distress. He gave us ten days to repair and depart. He told me of the sloop having been there, naming the two captains that were in her, and that he had treated them in a very friendly manner, accompanied with many other falsehoods on the subject; also that Captain Farmer from New York had touched there a few days before. I endeavored to persuade him to allow us to continue sealing with part of the crew while the remainder were getting the ship in order. He said it was not in his power to allow it, his instructions from his King would not permit it. I then told him that I would make him some compensation, after which he said no more about his instructions, but that he would go up to the garrison and consult with his commissary, who was the head man of the sealing party that had been taking them on the island. The next day he sent us a pilot, with an invitation to come up with the ship to the garrison, which we declined, but sent him some stores with an invitation to make us a visit on board. A couple of days afterwards he made his appearance in a launch, and we were prepared to receive him; the captain and such men as had been here before in the sloop secreting themselves between decks. We now had the commandant and commissary both on board. After considerable negotiations they agreed that we might take all the seal we would for two months, for which indulgence we agreed to give them our shallop. As soon as the contract was signed (I having occasionally had my secret conferences with the captain between decks), the captain of the ship made his appearance in the cabin, and made his *entrée* in the most perfect good nature, that somewhat allayed the feelings of the commandant, but he was very much astonished and frightened. We, however, soon made him more at his ease, although the lies he had told me must have been fresh on his mind; but we never reminded him of that. The commissary, who had opposed our men's being made prisoners, and who was friendly when they were so, was much pleased with our *finesse*. We could have but little objection to giving them our shallop, as she would be no longer useful to us, and it was important for us to go into the river with the ship, where we should have a good harbor.

Having obtained permission we ran the ship up and moored her alongside the fort, and as we had a crew of forty men, which was more than they could muster, we had nothing to fear from them, and had now a written contract which the commandant would not like to have known to his Government. Towards evening, having unbent our sails and got all snug, the sailors were allowed to go on shore. There were about thirty Patagonian Indians, each of whom had a horse to let for a biscuit apiece. Our men soon verified the old adage "set a sailor on horseback and he will ride to the devil." Up hill and down the speed was the same—a full gallop. The horses were luckily good and very sure footed, yet two or three men got thrown. One horse fell, but the sailor was soon on and started again, saying it was only a lee lurch. None got hurt. The Indians appeared to enjoy it as much as the sailors. As they have plenty of horses, they do not value them much. A few biscuits would have purchased any of them.

Mr. Townsend next records the visits of the Spaniards to the vessel and describes the appearance of the Patagonians.

They are a wandering people and live by hunting, moving with ease as they take their houses with them. These houses are made of light poles with guanaco skins for covering. The guanaco is a kind of deer, more fleet than their horses. They endeavor to surround them and when sufficiently near to entangle them by very dexterously heaving a line, with a stone at each end, round their legs. The line is about 4 feet long. One of the stones is held in the hand, giving the other stone a very quick velocity round their head while the horse is at full speed. It is from this animal that they get 'Bazaar Stone,' once so highly valued for its medicinal properties, but at present thought little of. We got a number of them about the size of a duck's egg. They are formed in concentric coat, and their color is dark green. The Indians kept us well supplied with wild meat, such as guanaco, hares and ostrich, tiger, and wild cat, and we bought from them blankets made from the guanaco skins sewed together, such as they use for clothing. They are covered with wool, or something between wool and fur. We caught plenty of fish. There are also mussel beds, as at the Falkland Islands, but no other shell-fish, although the Spaniards say that there were formerly plenty of oysters.

The garrison is a stockade about 9 feet high, inside of which are the barracks and a block house of two stories about 30 feet square, also a church and a bake-house. They mount seven six-pounders and four swivels, and had about thirty men at that time, some having recently left them and gone home to the river La Plata. At the principal entrance gate they had a poorly carved female figure-head of some ship that had been cast away. They called it the Virgin Mary and never passed it without a bow and crossing themselves.

The commandant had a tolerable garden, in a valley, the only spot which I saw where the vegetation was not very much parched. The hills which surrounded it protected it very much from the sun, and it was watered from a well about 30 feet deep. It required great attention, but they had little else to do. It seldom rains here in the summer; did not rain a drop during our visit, but there is some dew. The whole country appeared as if suffering under a severe drought. There are no woods, and it is surprising how their horses are kept in such good order. It is only in the valleys they can get anything. Even water is difficult to be had, and what there is is brackish. I rode several

times 8 or 10 miles into the country in different directions. It all appeared much the same. Saw here and there a bush, on some of which were a few indifferent berries. About 6 miles from the fort and 2 miles from the sea-shore is a body of salt, about 2 miles long and above a mile wide, perfectly dry, so that we could walk over it. Being perfectly white the appearance was beautiful. The winter rains dissolve it, but in the summer it is dry and about 2 or 3 inches in thickness. The Indians brought us on their horses about 200 bushels, for which we paid a trifle. The salt lay higher than the ocean, so that I do not think it is sea salt. All the land about the place seemed saturated with salt. It was not uncommon to see small patches of salt a few feet square. The weather was very fine and pleasant. Both the Indians and the soldiers enjoyed excellent health. The tide ebbed and flowed about 16 feet, and it was high water on the sea-board at the full and change a little before 12 o'clock.

We lived on the most friendly terms with the Spaniards. The clergyman we esteemed and respected very highly. He was a very excellent man and frequently dined with us.

On the 10th of February the brig Hetty, Captain Robertson, of and from New York, stopped here. Had been out five months, and had on board six thousand hair-seal skins salted, taken on the coast to the northward.

On the 16th of February we sailed from Port Desire, leaving our shallop with the Spaniards, according to contract. During our six weeks' stay at Port Desire we had taken all the seals in the islands, much to the astonishment of the Spaniards, who expected us to work in their own indolent manner. We felt but little regret at leaving the commandant, who was an overbearing "blowed-up-with-a-quill fellow;" but for the commissary, who was a high-minded Castillian, and had seen better days, and the padre, or priest, who was intelligent and all goodness, there was something inexpressibly unpleasant in leaving them in such a country with no possibility of ever seeing them again. It was some time before we neglected occasionally to drink better times to Rosseau, the commissary, and the padre, and "reformation" to the commandant.

After a passage of four days we anchored again at West Point, Falkland Islands, about 4 miles from our old anchorage. We were wooded and watered and took on board about a dozen hogs, part of which were some that we brought from America. They had doubled in numbers; some of the pigs had gone off, but we got all the old ones. We had also left two turkeys and two goats, which we found on our return. We also got from the garden which we had left, 7 bushels of potatoes, which were very important to us, as we had no other vegetables on board. On the 28th we put to sea, but on the 29th, the weather being bad, we were very glad to get back again, where we lay windbound until the 6th of March. At this time we put up a quantity of mussels in the manner of pickled oysters, and they kept quite good.

It was getting late in the season for doubling Cape Horn, as it was now a fall month. We had determined, however, to make the best of our way for Mas-á-Fuera, or the lesser Juan Fernandez, as it is sometimes called, the only place we could now calculate on for making up our cargo of fur-seal skins.

On the 6th of March, 1798, we left the Falkland Islands to double Cape Horn. We intended going through the Straits Le Maire, but adverse winds prevented. We wished to do it, if possible, as it would be gaining westing, which is important in going round the cape, and we had no idea of attempting to pass through Straits of Magellan. The boatswain of our ship had been through there once in a Spanish ship, and was four months getting through. It is a crooked, difficult passage, and can never be preferred to going round. We had heavy weather most of the time, and March 23, when we got the ship's head to the northward, considered ourselves round. Our latitude then was 58° 56′ south and longitude 77° 58′ west. On the 19th we had our greatest southing, being in latitude 60° south, and had the severest weather, splitting several of our sails and getting pretty well loaded with ice. On the 28th, in latitude 49° 54′ south, longitude 85° 30′ west, we saw kelp weed, which we considered as indicating land. The Duke of York's Islands are said to be about here, but their existence is very doubtful. On the 1st of April a small yellow land-bird came on board, and after getting rested left us, taking a correct course for the shore, although we were several degrees from it. About this time we opened a half barrel of sauerkraut put up in America, which was excellent, and I shall always recommend it to be put up in the same manner for long voyages. The cabbage was cut up small, thrown into salt and water overnight, then packed in layers with pepper, pimento, cloves, and vinegar. Our mussels put up as pickled oysters were also fine.

SEALING AT MAS-Á-FUERA AND JUAN FERNANDEZ.

On April 11th we made the Island of Juan Fernandez, which is high mountainous land. The Spaniards have a garrison here. The next day we landed on Mas-á-Fuera, the former residence of Alexander Selkirk, where we took part of our crew on shore, leaving enough on board to work the ship as we were obliged to stand off and on, there being no harbor or good anchorage. We found here a boat's crew left by a New Bedford whaleman to take seal, the vessel intending by and by to call and take them off; and part of the crew of the ship Betsey, of New York, Captain Fanning, having secured skins and proceeded to Canton, these men wishing to try their chances on the island. We also found an English sailor lad named Bill, who had been left alone here several months before. He was contented with his situation and said he could get everything he wanted but bread and rum. He lived in a cave alone and was collecting seal-skins, calculating to sell them as vessels touched there. He brought off and sold us sixty skins, on which he would fix no price beyond filling his keg with rum which only held about 2 gallons. He said he wanted nothing more at that time, with that he would feel rich enough, as he had plenty of bread. As we were unwilling to receive so many skins for less than one tenth of their value we were at a loss how to pay him. He did not even want any more rum, and though we mustered something else and gave him it was not half enough. He left us, apparently as happy as a lord, saying he enjoyed himself better on the island than he ever did before in his life. He could sleep when he pleased, and work when he pleased; there was "no starboard nor larboard watch," and "no one to quarrel with." He

took his keg of rum on shore and buried it in the ground and two or three weeks afterward he invited those of our crew who were left there to come and see him at his cave, as it was his birthday and he wished to treat them. They accepted his invitation and went, when he dug up his keg which they were surprised to find unbroached and entirely full. The party was a merry one and helped him drink it up, which made them all "rich," and after the entertainment stowed away his empty keg and declared that no ship should pass the island without filling it again.

The island of Mas-á-Fuera is in latitude 33° 41′ south, longitude 80° 50′ west from Greenwich, and about 90 miles east by north from Juan Fernandez, which can be seen on a very clear day. The shore is a rugged one all round the island, the mountains very erect, no low land, but here and there a spot that has been made by the stone and earth which has been forced from the mountains by the rains. The high ground is pretty much covered with trees interspersed here and there with a pleasant lawn, the verdure of which appeared beautiful from our boat and from the ship when we stood near on with the land. We frequently saw goats feeding on them in herds of twenty or thirty. The tops of the mountains are frequently whitened with snow, which would cover them in squalls when we have pleasant summer weather below.

Along the shores of the island there are a number of very romantic gulfs, one of which the sailors called the "Pound," because they frequently droye goats in—they could get no farther—and caught them there. In the center of the gulf is a pyramidal rock, about 500 feet high, with a cluster of trees on the top, and apparently cut down on each side by the water which is continually streaming down. After dashing down among the rocks for a considerable distance, the water has a perpendicular fall of about 80 feet, in two columns of about a rod in width, one on each side. The only view of these, however, is near the falls themselves, as they have worn away the rocks until they are left several rods in advance. The main island out of which the gulf was formed maintains a great height to the shore surrounding it, with tall and abrupt mountains, and nearly meeting, so as to form a narrow entrance. The goats go there frequently for the fresh water at the cascade, and half a dozen men could easily prevent their escape. The water running so quick from the region of snow just above was not only clear and pure, but so extremely cold that we could hardly drink it. Hunting goats s generally hazardous, their paths winding along the cliffs where the stones often appear firm, but give way immediately under the weight of a man. One of our men fell, with the stone on which he slipped, about 30 feet into some bushes, which he held to for his life, and from which he was relieved with much difficulty. I have frequently been at a stand several minutes, uncertain whether to advance or retreat in my pursuit after these nimble creatures. In climbing cliffs it is generally safest to advance, as you can with more security test the ground with your hands than with your feet. The fish are abundant and very fine at this island. Our men caught them in plenty close to the shore by taking a seal skin with the fat on it and holding it in one hand, floating, and spread out upon the water. The fish would come into it so carelessly that with the other hand under the skin they could catch what they wanted. These were small, but as we went farther from the shore we got larger ones. We used to get the best fish in 15 fathoms, at which depth we caught them weighing 30 and 40 pounds. We could hook them about as fast as we could pull them in. They are the only food of the seals. Torpedo fish are said to be found here, but we caught none.

We remained here eight weeks, and secured about 15,000 skins. During the latter part of the time, it being the winter season, the weather was very bad, and we frequently stove our boats in the surf. In good weather we took about 500 skins a day, finding them much better in quality than we had expected from the latitude. On leaving we landed a couple of hogs, calculated to increase, for the benefit of those who might come after us. Some one had done the same in landing nine sheep, which we frequently saw together without molesting them. The sailor lad "Bill" we left there still contented, without any apparent wish to leave the place or to accumulate property for that purpose, although he continued to get seal skins.

The crew left here by Captain Fanning we have agreed to take on board, and have purchased their skins. We leave twelve of our crew here on account of myself and Captain Greene, and I have agreed to come out for them; therefore upon my return home I shall make but a very short stay with you. The men we leave are Doctor David Forbes, who is captain of the gang; J. F. Greene, who is second; Oliver Bradley, William Gorham, David Bogie, Benjamin Thompson, John Howard, Elijah Davis, and my negro boy Aaron, and C. W. Jacobs. They are to allow us twenty-two months to get back and take them off. If we are not then here they are at liberty to make the best of their way off. They are on shares. We think they will get a good cargo of skins. The pups are just getting of proper age to take. They have as yet been too black, and we have not taken any but yearlings and old ones. This crew have now chosen a comfortable spot and are building themselves comfortable log-houses, and now, calculating for a lengthy residence, will live more pleasantly than since we have been here. We have on board of Captain Fanning's crew, Josiah Townsend, Gilbert Tomlinson, Lemuel Scot, Jonathan Durgin, Joseph Holley, Joseph Smith, Thomas Carpenter, and Abraham Dickerman.

BOUND FOR CHINA AND HOME.

We left the island of Mas-á-Fuera on the 9th of June, and on the 20th we made the island of St. Felix, one of the St. Ambrose Islands, which form a small and barren cluster in about the latitude of 26 degrees south, and longitude about 81 degrees west. We landed, but found nothing worth our attention except the head of a barrel marked "I. Winship, Boston." These islands bear evident marks of having been volcanic, and are about 60 feet above the level of the sea. The sides are so steep that it was difficult getting on the high ground, which was entirely barren, excepting a few clusters of samphire. The birds were very plenty, and no doubt lay plenty of eggs in the season. There were many just hatched. They lay on the earth, without nests, and we got a few eggs. Fish were as plenty as at Mas-á-Fuera. On Saturday night, June 13, we left these islands with a determination to proceed for Canton, and having now closed

the sealing part of our voyage we gave the crew an extra allowance of grog, with which, as is always usual with sailors on Saturday night, if in their power, they drank "sweethearts and wives"; those who are married invariably drink "wives and sweethearts." After this we mustered all our music, which was a drum and fife, and negro Dick, who could sing jigs and contra dances enough to tire out all on board, found a good opportunity to test his peculiar talents. At midnight the entertainment broke up with three cheers and a "good bye to sealing," none calculating on *anything but pleasure for the rest of the voyage, having finished what we considered the fatiguing part of it.*

July 4, being fine weather, and feeling disposed to honor the day as much as was in our power, an extra allowance of grog was given to the crew. This produced no little mirth and jollity. Not one of the men thought but that he was under republican government, although nothing but a strict monarchical form was ever tried with success on board of a ship. Many of our crew were very smart, ambitious young men, and might reasonably calculate on being ship-masters, marine monarchs (ship-masters), themselves in proper time, and now seemed to enjoy a little of those feelings by anticipation which they hoped hereafter to possess. In our voyage across the Pacific they exerted themselves to be qualified for commanding ships, and the captain gave them as much indulgence as he could for that object, allowing them time and giving them instruction. It was quite a regular good school on board, and the progress was even greater than in some literary institutions on shore. Some men that could not do a sum in addition when we left America could now work lunar observations. We had fine weather, and nothing material occurred until the 2d of August, when our crew began to complain of the scurvy. It first showed itself in hard, blue spots on the legs, with pain in the joints. Several men were very sick, and ten were sick with it when we arrived at the Sandwich Islands on the 14th of August. They recruited wonderfully on getting vegetables. In twenty-four hours there was an evident convalescence. One man, who was black from his feet to his hips, and whom we expected to lose, was well within a week.

From the 14th to the 30th of August the Neptune was at the Sandwich Islands, about which a detailed account is written.

We left these islands on the 31st of August, on our way to Canton, our crew having benefited much in health during our stay. On the 10th of September our distance is the same east or west from Greenwich, our longitude being 180 degrees east or west from that observatory. We now lose one day and call it the 11th of September. On the 3d of October we made the island of Tinian, in latitude 14° 54′ north, longitude 144° 32′ east.

Mention is made of the inhabitants here and at some islands touched at, and on the 24th of October, 1798, the vessel arrived at Macao.

We went on shore at Macao to get a pilot for Canton. Our first duty was to call on the governor, and we understood that civility required our calling on Captain Turner, the commodore of the English ships then lying in the Typa. We were received by both very politely. At Captain Turner's an English gentleman who had been in America, wishing to be civil, said to me that he had been through the United States, with which he was very much pleased, and, I presume suspecting I was a full-blooded Yankee, said to me, "Were you ever in Connecticut?" I replied, "Yes". He said, "Were you ever in New Haven?" "Yes, sir; I have been there frequently." "Well, that is the place that I was pleased with."

After three hours' delay at Macao, we secured a pilot and proceeded up the river, and anchored at Whampoo at 2 o'clock on the morning of the 25th. On the 26th we got up among the shipping at our moorings and went up to Canton in a san pan, which is one of their small passage boats. We had to stop about half a dozen times at the chop houses for examination. * * * On our arriving at Canton we were immediately invited by several of the captains and supercargoes to take up our quarters with them until we should be fixed in our own. I accepted the invitation of Mr. Gray, of Boston. * * * On the 29th we took possession of our factory between us and a northwest trader from Boston, each to pay $400, not expecting to want it over a month or five weeks.

We sold our skins at $2 each, and the northwest captain sold his sea-otter skins at $28 each, both making great voyages. On the 2d of November we began receiving our skins into the factory. The lower part was for storage and we lived in the upper part. On the lower floor there was a large space in the center and a small room on the other side, with which we had nothing to do. The skins were brought in and laid in piles of one hundred.

The men were bringing them in and I was walking back and forth. I soon noticed a change in one of the piles, counted them, and found five skins missing. They could not have gone out of the door, for there was one man standing there. The door of the room we had not seen opened, but we concluded they could not possibly go anywhere else, and inquired for the key, which could not be found. We got an ax and were about breaking it open when a Chinin stepped up with the key, letting us know that it was his room. We went in and found nothing there but a sailor's chest, apparently empty, and were about giving up the search when we thought possibly they might be in the chest. We were obliged to apply the ax to that, and found in one end a small box, into which the skins were packed, and into which we should not have thought it possible to have got a single skin. There was great dispatch and ingenuity in the management; I think none but a Chinin could have done it. We gave the fellow a good rattaning on the spot and let him run, which was less trouble than to have applied to the police, and there was no danger of his complaining, for if he had he would have been more severely punished. It appears to be very much the practice here for foreigners to take their own satisfaction for petty offences.

As we had agreed for about 1,000 chests of Bohia tea, which is something of a job to be packed, we soon commenced receiving that part of our cargo. This sort of tea is brought in from the country in baskets, and is a very in-

definite quality. It is a mixture of inferior teas. They are stacked into a heap and examined. If found inferior, other black teas, as Campoy or Congo or such like, are mixed with it until it is considered merchantable Bohia, and as nothing here is managed on a contracted scale, if the purchaser attends closely to his interests and is a judge of what he is receiving he is likely to be dealt liberally with, for I consider the Hong merchants as very honorable men. There is seldom anything little or contracted with them. They are above it, and I think it due to their character to say as a class of merchants no body of merchants of any country are more honest or more honorable. They are above little actions, but, as in all other countries, it is necessary that a man should attend to his own business and attend to it closely. We received our teas from Ponqua. Our Bohia we complained of. He gave us Souchong to mix with it—a few baskets was of no consequence. He allowed us to mix until we should have been dishonest not to have been satisfied. He was the man who bought our skins, to pay us in barter, and he complied with his contract in the most honorable manner. Our silks we bought from Youqua, who is in China street, and not a Hong merchant, but a very honest, clever fellow. They have been trying to get him into the Hong, but he wishes to keep out of it. He therefore is very private in his business, wishing the impression to be that he is able to do but little. He does a heavy business in a very private manner.

We commenced packing our Bohia tea. This was a very dirty, unpleasant business. We packed two hundred chests a day, beginning at 4 o'clock in the morning, and had them finished and marked about noon. One man packs one chest, treading it in with his feet. After the packing it is the custom to dine with the Hong merchant in his hong, or store, for we never visit their houses. With the expectation that we will invite all our friends, a dinner is accordingly provided in elegant English style.

The Neptune completed taking in her cargo of teas, silks, and other Chinese products, and sailed about January 1 for home, via Cape of Good Hope, arriving at New Haven July 11, 1799. The shares of the sailors were about $1,200 each.

4.—THE SEA-LION HUNT.

By Henry W. Elliott.

1. CAPTURE OF THE SEA-LION.

While the greatest number of sea-lions are captured on the Pribylov Islands every year, yet it should be plainly understood that the hunting of these animals is not restricted to those islands in Alaska by any means, as is so remarkable in the case of the fur-seal. On the contrary the sea-lion is secured at many points between Attoo and Kadiak, and has been the means of making the Aleuts of the Aleutian chain very independent as to the construction of their elegant sea-going "bidarkies" and "bidarrahs," which are simply necessary to their means of procuring a livelihood by fishing and the chase of the sea-otter.

Unlike the method of the Pribylov natives, the Aleutians are obliged to employ their otter spears and fire-arms when they seek the sea-lion, approaching the dozing animals either as they sleep in the water or on the rocks awash, in their bidarkies with the wind well to leeward. Sometimes they manage to approach from the sea so cautiously as to stampede the astonished brutes up ravines or over rolling moorlands, where they are easily shot and speared. Generally, however, the natives secure only three or four out of the herd, the others escaping pell mell into the freedom and shelter of the sea.

The great intrinsic value to the domestic service of the Aleuts rendered by the flesh, fat, and sinews of this animal, together with its skin, arouses the natives of Saint Paul and Saint George, who annually make a drive of "seevitchie," by which they capture, on the former island, two or three hundred, as the case may be, every year. On Saint George, driving is so much more difficult, owing to the character of the land itself, that very few are secured there; but at Saint Paul unexceptional advantages are found on Northeast Point for the capture of these shy and wary brutes. The natives of Saint Paul, therefore, are depended upon to secure the necessary number of skins required by both islands for their boats, &c. This capture of the sea-

lion is the only serious business which the people have on Saint Paul; it is a labor of great care, industry, and some physical risk for the Aleutian hunters. A curious, though doubtless authentic, story was told me in this connection, illustrative of the strength and energy of the sea-lion bull when at bay. Many years ago (1847), on Saint Paul Island, a drive of September sea-lions was brought down to the village in the usual style; but when the natives assembled to kill them, on account of the great scarcity, at that time, of powder on the island, it was voted best to lance the old males also, as well as the females, rather than shoot them in the customary style. The people had hardly set to work at the task when one of their number, a small, elderly, though tough, able-bodied Aleut, while thrusting his lance into the "life" of a large bull, was suddenly seen to fall on his back, directly under the huge brute's head; instantly the powerful jaws of the "seevitchie" closed upon the waistband, apparently, of the native, and, lifting the yelling man aloft, as a cat would a kitten, the sea-lion shook and threw him high into the air, away over the heads of his associates, who had rushed up to the rescue. *Leo marinus* was quickly destroyed by a dozen furious spear-thrusts, but in its clenched jaws were the tattered fragments of Ivan's trousers, an unimpeachable evidence of the poor fellow's emasculation.

By reference to my sketch map of Northeast Point fur-seal rookery on a previous page, the observer will notice a peculiar neck or boot-shaped point, which I have designated as Sea-Lion Neck. This area is a spot upon which a large number of sea-lions are always to be found during the season. As they are so shy, and sure to take to water upon the appearance or presence of a man near by, the natives adopt this plan:

PREPARATIONS FOR THE DRIVE.—Along by the middle or end of September, as late sometimes as November, and after the fur-seal rookeries have broken up for the season, fifteen or twenty of the very best men in the village are selected, by one of their chiefs, for a sea-lion rendezvous at Northeast Point. They go up there with their provisions, tea and sugar, blankets, &c., and make themselves at home in the "barrabbora" and houses, which I have located on the sketch-map of Novastoshnah, prepared to stay, if necessary, a month, or until they shall get the whole drove of two or three hundred sea-lions together.

METHODS OF DRIVING SEA-LIONS.—The "seevitchie," as the natives call these animals, can not be approached successfully by daylight, so these hunters lay by, in this house of Webster's, until a favorable night comes along—one in which the moon is partially obscured by drifting clouds, and the wind blows over them from the rookery where the sea-lions lie. Such an opportunity being afforded, they step down to the beach at low water, and proceed to creep flat on all-fours over the surf-beaten sand and bowlders up to the dozing herd, and between it and the high-water mark where it rests. In this way, a small body of natives, crawling along in Indian file, may pass unnoticed by the sea-lion sentries, which doubtless, in the uncertain light, see but confound the forms of their human enemies with those of seals. When the creeping Aleuts have all reached the strip of beach that is left bare by ebb-tide, which is between the water and the unsuspecting animals, at a given signal from their crawling leader they all at once leap to their feet, shout, yell, brandishing their arms, and firing off pistols, while the astonished and terrified lions roar and flounder in all directions.

The natives appreciate this peculiarity of the sea-lion very keenly, for good and sufficient cause, though none of them have ever been badly injured in driving or "springing the alarm." I camped with them for six successive nights in September, 1872, in order to witness the whole procedure. During the several drives made while I was with them I saw but one exciting incident; everything went off in the orthodox manner, as described in the text above. The exceptional incident occurred during the first drive of the first night, and rendered the natives so cautious that

it was not repeated. When the alarm was sprung, old Luka Mandirgan was leading the van, and at that moment, down upon him, despite his wildly gesticulating arms and shrill yelling, came a squad of old bull "seevitchie." The native saw instantly that they were pointed for the water, and, in his sound sense, turned to run from under, his tarbosar slipped upon a slimy rock awash, he fell flat as a flounder, just as a dozen or more big sea-lions plunged over and onto his prostrate form in the shallow water. In less time than this can be written the heavy pinnipeds had disappeared, while the bullet-like head of old Luka was quickly raised, and he trotted back to us with an alternation of mirth and then chagrin in his voice; he was not hurt in the least.

BEHAVIOR OF THE SEA-LIONS WHEN SURPRISED.—If, at the moment of surprise, the brutes are sleeping with their heads pointed toward the water, they rise up in fright and charge straight on in that way directly over the men themselves; but if their heads have been resting at this instant pointed landward, up they rise and follow that course just as desperately, and nothing will turn them either one way or the other. Those sea-lions which charged for the water are lost, of course; but the natives promptly follow up the land-turned animals with a rare combination of horrible noises and demoniacal gesticulations until the first frenzied spurt and exertions of the terrified creatures so completely exhaust them that they fall panting, gasping, prone upon the earth, extended, in spite of their huge bulk and powerful muscles, helpless and at the mercy of their cunning captors, who, however, instead of slaying them as they lie, gently rouse them up again, and urge the herd along to the house in which they have been keeping this watch during the several days past so as to be on hand in time to take advantage of such a night in which to make this effort.

THE "CORRAL."—Here, at this point, is a curious stage in the proceedings. The natives drive up to that "Webster's" house the twenty-five or thirty or forty sea-lions, as the case may be, which they have just captured—they seldom get more at any one time—and keep them in a corral or pen right by the "barrabbora," on the flattened surface of a sand-ridge, in the following comical manner: When they have huddled up the "pod," they thrust stakes down around it at intervals of 10 to 30 feet, to which strips of cotton cloth are fluttering as flags, and a line or two of sinew-rope, or thong of hide, is strung from pole to pole around the group, making a circular cage, as it were. Within this flimsy circuit the stupid sea-lions are securely imprisoned, and, though they are incessantly watched by two or three men, the whole period of caging and penning which I observed, extending over nine or ten days and nights, passed without a single effort being made by the "seevitchie" to break out of their frail inclosure; and it was passed by these animals not in stupid quiescence, but in alert watchfulness, writhing, twisting, turning one upon and over the other, so that they resembled to my fancy a handful of worms as they struggle to escape when thrown upon a heated saucer.

By this method of procedure, after the lapse usually of two or three weeks, a succession of favorable nights will have occurred; and the natives secure their full quota, which, as I have said before, is expressed by a herd of two or three hundred of these animals.

PREPARATION AND METHOD OF DRIVING TO THE VILLAGE.—The complement filled, the natives then prepare to drive their herd back to the village, over the grassy and mossy uplands and intervening stretches of sand-dune tracts, fully 11 miles, preferring to take the trouble of prodding the clumsy brutes, wayward and obstinate as they are, rather than to pack their heavy hides in and out of boats; making, in this way, each sea-lion carry its own skin and blubber down to the doors of their houses in the village. If the weather is normally wet and cold, this drive, or caravan of lions, can be driven to the point of destination in five or six days; but, should it be

dry and warmer than usual, three weeks, and even longer, will elapse before the circuit is traversed.

When the drive is started the natives gather around the herd on all sides, save the opening which they leave pointing to the direction in which they desire the animals to travel; and in this manner they escort and urge the "seevitchie" on to their final resting and slaughter near the village. The young lions and the females being much lighter than the males, less laden with fat or blubber, take the lead, for they travel twice and thrice as easy and as fast as the old males, which, by reason of their immense avoirdupois, are incapable of moving ahead more than a few rods at a time, when they are completely checked by sheer loss of breath, though the vanguard of the females allures them strongly on; but, when an old sea-lion feels his wind coming short, he is sure to stop, sullenly and surlily turning upon the drivers, not to move again until his lungs are clear.

In this method and manner of driving, the natives stretch the herd out in extended file, or, as a caravan, over the line of march, and, as the old bulls pause to savagely survey the field and catch their breath, showing their wicked teeth, the drivers have to exercise every art and all their ingenuity in arousing them to fresh efforts. This they do by clapping boards and bones together, firing fusees, and waving flags; and, of late, and best of all, the blue gingham umbrella repeatedly opened and closed in the face of an old bull has been a more effective starter than all the other known artifices or savage expedients of the natives. Is it not an amusing coincidence that while lions are hunted under umbrellas in Africa, their marine namesakes are chased with them in Alaska!*

ARRIVAL OF THE DRIVE AT THE VILLAGE.—The procession of sea-lions managed in this strange manner day and night—for the natives never let up—is finally brought to rest within a stone's throw of the village, which has pleasurably anticipated for days and for weeks its arrival, and rejoices in its appearance. The men get out their old rifles and large sea-lion lances, and sharpen their knives, while the women look well to their oil-pouches, and repair to the field of slaughter with meat-baskets on their heads.

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* The curious behavior of the sea-lions in the Big lake, when they are *en route* and driven from Novastoshnah to the village, deserves mention. After the drove gets over the sand-dunes and beach between Webster's house and the extreme northeastern head of the lake, a halt is called and the drove "penned" on the bank there; then, when the sea-lions are well rested, they are started up, and go pell-mell into the water; two natives, in a bidarka, keep them from turning out from the shore into the broad bosom of Meesulkmahnee, while another bidarka paddles in their rear and follows their swift passage right down the eastern shore. In this method of procedure the drive carries itself nearly two miles by water in less than twenty minutes from the time the sea-lions are first turned in, at the north end, to the moment when they are driven out at the southeastern elbow of the Big pond. The shallowness of the water here accounts probably for the strange failure of the sea-lions to regain their liberty, and so retards their swimming as to enable the bidarka, with two men, to keep abreast of their leaders easily, as they plunge ahead; and "as one goes so go all sheep," it is not necessary to pay attention to those which straggle behind in the wake; they are stirred up by the second bidarka, and none make the least attempt to diverge from the track which the swifter mark out in advance; if they did, they could escape "scot-free" in any one of the twenty minutes of this aquatic passage.

By consulting the map of Saint Paul, it will be observed that in a direct line between the village and Northeast Point there are quite a number of small lakes, including this large one of Meesulkmahnee; into all of these ponds the sea-lion drove is successfully driven. This interposition of fresh water at such frequent intervals serves to shorten the time of the journey fully ten days in warmish weather, and at least four or five under the best of climatic conditions.

This track between Webster's house and the village killing-grounds is strewn with the bones of *Eumetopias*. They will drop in their tracks, now and then, even when carefully driven, from cerebral or spinal congestion principally; and when they are hurried the mortality *en route* is very great. The natives, when driving them keep them going day and night alike, but give them frequent resting spells after every spurt ahead. The old bulls flounder along for a hundred yards or so, then suddenly halt to regain breath, five or ten minutes being allowed them; then they are stirred up again, and so on, hour after hour, until the tedious transit is completed.

The younger sea-lions, and the cows which are in the drove, carry themselves easily far ahead of the bulls, and being thus always in the van, serve unconsciously to stimulate and coax the heavy males to travel. Otherwise, I do not believe that a band of old bulls, exclusively, could be driven down over this long road successfully.

MANNER IN WHICH THE KILLING IS CONDUCTED.—No attempt is made, even by the boldest Aleut, to destroy an old bull sea-lion by spearing the enraged and powerful beast, which, now familiar with man and conscious as it were of his puny strength, would seize the lance between its jaws and shake it from the hands of the stoutest one in a moment. Recourse is had to the rifle. The herd is started up the sloping flanks of the black, bluff hill-sides; the females speedily take the front, while the old males hang behind. Then the marksmen, walking up to within a few paces of each animal, deliberately draw their sights upon their heads and shoot them just between the eye and the ear. The old males thus destroyed, the cows and females are in turn surrounded by the natives, who, dropping their rifles, thrust the heavy iron lances into their trembling bodies at a point behind the fore-flippers, touching the heart with a single lunge. It is an unparalleled spectacle, dreadfully cruel and bloody.

This surround of the cows is, perhaps, the strangest procedure on the islands. To fully appreciate the subject, the reader must first call to his mind's eye the fact that these female sea-lions, though small beside the males, are yet large animals, 7 and 8 feet long, and weighing, each, as much as any five or six average men. But, in spite of their strength and agility, fifteen or twenty Aleuts, with a rough, iron-tipped lance in their hands, will surround a drove of fifty or one hundred and fifty of them by forming a noisy, gesticulating circle, gradually closing up, man to man, until the sea-lions are literally piled in a writhing, squirming, struggling mass, one above the other, three or four deep, heads, flippers, bellies, backs all so woven and interwoven in this panic-stricken heap of terrified creatures, that it defies adequate description. The natives spear the cows on top, which, as they sink in death, are mounted in turn by the live animals underneath, these meet the deadly lance in order, and so on until the whole herd is quiet and stilled in the fatal ebbing of their hearts' blood.

2. ECONOMIC USES OF THE SEA-LION.

HIGH APPRECIATION OF THE SEA-LION BY THE ALEUTS.—Although the sea-lion has little or no commercial value for us, yet to the service of the natives themselves, who live all along the Bering sea-coast of Alaska, Kamtchatka, and the Kuriles, it is invaluable; they set great store by it. It supplies them with its hide, mustaches, flesh, fat, sinews, and intestines, which they make up into as many necessary garments, dishes, &c. They have abundant reason to treasure its skin highly, for it is covering to their neat "bidarkies" and "bidarrahs," the former being the small "kyak" of Bering Sea, while the latter is a boat of all work, exploration, and transportation. These skins are unhaired by sweating in a pile; then they are deftly sewed and carefully stretched over a light keel and frame of wood, making a perfectly water-tight boat that will stand, uninjured, the softening influence of water for a day or two at a time, if properly air-dried and oiled. After being used during the day, these skin boats are always drawn out on the beach, turned bottom-side up and air-dried during the night, in this way made ready for employment again on the morrow.

When slowly sketching, by measurements, the outlines of a fine adult bull sea-lion which the ball from Booterin's rifle had just destroyed, an old "starooka" came up abruptly; not seeming to see me, she deliberately threw down a large, greasy, skin meat-bag, and whipping out a knife, went to work on my specimen. Curiosity prompted me to keep still in spite of the first sensations of annoyance, so that I might watch her choice and use of the animal's carcass. She first removed the skin, being actively aided in this operation by an uncouth boy; she then cut off the palms to both fore flippers; the boy at the same time pulled out the mustache bristles; she then cut out its gullet, from the glottis to its junction with the stomach, carefully divested it of all fleshy attachments, fat, &c.; she then cut out the stomach itself, and turned it inside out, carelessly

scraping the gastric walls free of copious biliary secretions, the inevitable bunch of *ascaris*, &c.; she then told the boy to take hold of the duodenum end of the small intestine, and as he walked away with it she rapidly cleared it of its attachments, so that it was thus uncoiled to its full length of at least 60 feet; then she severed it, and then it was recoiled by the "melchiska," and laid up with the other members just removed, except the skin, which she had nothing more to do with. She then cut out the liver and ate several large pieces of that workhouse of the blood before dropping it into the meat-pouch. She then raked up several handfuls of the "leaf lard," or hard, white fat that is found in moderate quantity around the viscera of all these pinnipeds, which she also dumped into the flesh-bag; she then drew her knife through the large heart, but did not touch it otherwise, looking at it intently, however, as it still quivered in unison with the warm flesh of the whole carcass. She and the boy then poked their fingers into the tumid lobes of the immense lungs, cutting out portions of them only, which were also put into the grimy pouch aforesaid; then she secured the gall-bladder and slipped it into a small yeast-powder tin, which was produced by the urchin; then she finished her economical dissection by cutting the sinews out of the back in unbroken bulk from the cervical vertebra to the sacrum. All these were stuffed into that skin bag, which she threw on her back and supporting it by a band over her head, she trudged back to the "barrabkie" from whence she sallied a short hour ago, like an old vulture to the slaughter; she made the following disposition of its contents: The palms were used to sole a pair of tarbosars, or native boots, of which the uppers and knee tops were made of the gullets, one sea-lion gullet to each boot top; the stomach was carefully blown up, and left to dry on the barrabkie roof, eventually to be filled with oil rendered from sea-lion or fur-seal blubber. The small intestine was carefully injected with water and cleansed, then distended with air, and pegged out between two stakes, 60 feet apart, with little cross-slats here and there between to keep it clear of the ground. When it is thoroughly dry, it is ripped up in a straight line with its length and pressed out into a broad band of parchment gut, which she cuts up and uses in making a water-proof "kamlaykie," sewing it with these sinews taken from the back. The liver, leaf-lard, and lobes of the lungs were eaten without further cooking, and the little gall-bag was for some use in poulticing a scrofulous sore. The mustache-bristles were a venture of the boy, who gathers all that he can, then sends them to San Francisco, where they find a ready sale to the Chinese, who pay about one cent apiece for them. When the natives cut up a sea-lion carcass, or one of a fur-seal, on the killing-grounds for meat, they take only the hams and the loins. Later in the season they eat the entire carcass, which they hang up by the hind flippers on a "laabas" by their houses

VALUE OF THE INTESTINES.—A peculiar value is attached to the intestines of the sea-lion, which, after skinning, are distended with air and allowed to dry in that shape; then they are cut into ribbons and sewed strongly together into that most characteristic water-proof garment of the world, known as the "kamlaika;"* which, while being fully as water-proof as India rubber, has far greater strength, and is never affected by grease and oil. It is also transparent in its fitting over dark clothes. The sea-lions' throats are served in a similar manner, and, when cured, are made into boot-tops, which are in turn soled by the tough skin that composes the palms of this animals fore flippers.

* The Aleutian name for this garment is unpronounceable in our language, and equally so in the more flexible Russian; hence the Muscovite "kamlaika," derived from the Siberian "kamläia." This is made of tanned reindeer skin, unhaired, and smoked by larch bark until it is colored a saffron yellow; and is worn over the reindeer-skin undershirt, which has the hair next to the owner's skin, and the obverse side stained red by a decoction of alder bark. The "kamläia" is closed behind and before, and a hood, fastened to the back of the neck, is drawn over the head when leaving shelter; so is the Aleutian "kamlaika," only the one of Kolyma is used to keep out piercing dry cold, while the garment of the Bering Sea is a perfect water repellant.

STOMACH-WALLS USED AS OIL-POUCHES.—Around the natives' houses, on Saint Paul and Saint George, constantly appear curious objects, which, to the unaccustomed eye, resemble overgrown gourds or enormous calabashes with attenuated necks; an examination proves them to be the dried, distended stomach walls of the sea-lion, filled with its oil; which, unlike the offensive blubber of the fur seal, boils out clear and inodorous from its fat. The flesh of an old sea-lion, while not very palatable, is tasteless and dry; but the meat of a yearling is very much like veal, and when properly cooked I think it is just as good; but the superiority of the sea-lion meat over that of the fur-seal is decidedly marked. It requires great skill in the *cuisine* ere sausage and steaks of the *Callorhinus* are accepted on the table; while it does not, however, require much art, experience, or patience for the cook to serve up the juicy ribs of a young sea-lion so that the most fastidious palate will fail to relish it.

CARING FOR THE FLESH.—The carcass of the sea-lion, after it is stripped of its hide, and disemboweled, is hung up in cool weather by its hind flippers, over a rude wooden frame or "labaas," as the natives call it, where, together with many more bodies of fur-seals treated in the same manner, it serves from November until the following season of May as the meat-house of the Aleut on Saint Paul and Saint George. Exposed in this manner to the open weather, the natives keep their seal meat almost any length of time, in winter, for use; and, like our old duck and bird hunters, they say they prefer to have the meat tainted rather than fresh, declaring that it is most tender and toothsome when decidedly "loud."

CHINESE DEMAND FOR WHISKERS.—The tough, elastic mustache bristles of the sea-lion are objects of great commercial activity by the Chinese, who prize them highly for pickers to their opium pipes, and several ceremonies peculiar to their joss houses. These lip bristles of the fur-seal are usually too small and too elastic for this service. The natives, however, always carefully pluck them out of the *Eumetopias*, and get their full value in exchange.

DIET OF THE SEA-LION.—The sea-lion also, as in the case of the fur-seal, is a fish-eater, pure and simple, though he, like the latter, occasionally varies his diet by consuming a limited amount of juicy sea-weed fronds and tender marine crustaceans; but he hunts no animal whatever for food, nor does he ever molest, up here, the sea-fowl that incessantly hovers over his head, or sits in flocks without fear on the surface of the waters around him. He, like his agile cousin, *Callorhinus*, is without question a mighty fisherman, familiar with every submarine haunt of his piscine prey; and feeds also like his furry relative, by rejecting the heads of all fishes which have hard, horny mouths, filled with large teeth or bony plates. I have never detected a sea-lion eating water birds or even noticing them as they flock upon the water all around these animals.

CALIFORNIA SEALING.—Professor Jordan obtained the following information about the sea-lion and hair-seal fishery of California:

At Los Angeles County the hair-seal, which abounds along the coast, is occasionally shot for its oil. Only the "bull seals" are killed. A seal will yield half a barrel of oil, worth 25 cents a gallon. The galls and genitalia are saved and sold to the Chinese, who are said to eat them. The seal is a source of great annoyance to those fishermen who use gill-nets. It waits until the nets are set, and then rifles them of the fish, evidently considering the whole performance an improvement on his previous methods of fishing. He seldom much injures the nets.

At Santa Barbara County the hair-seal is killed principally for its oil, as is the sea-lion, both of which animals, if distinct species, are extremely abundant on Anacapa and the other islands. They breed in June and July, and are chiefly killed from May to July. Only the pups are shot in winter. The average seal makes 5 to 15 gallons of oil, worth from 20 to 25 cents a gallon. Rogers Bros. sold last year 150 barrels of oil at about $15 per barrel. There is now very little profit in

this business. The hides are in general not used, but an attempt is being made to use them for shoe-soles. The "trimmings" of the seals are saved and sold to the Chinese. They consist of—

1. The whiskers, which are mounted with silver, &c., three together, and used as toothpicks.
2. The intestines, gullet, &c., used as food.
3. The genitals, used for soup.
4. The galls, used as medicine.
5. The teeth, used for rings and made into ornaments.

A sea-lion skin entire averages about 125 pounds; when the belly is thrown away, about 87½ pounds; and the body produces about 11½ gallons.

Very lately an agent of a San Francisco firm has come to Santa Barbara to buy seal-skins for some purpose of boat-making in Alaska; he offers good prices for them. Fifteen to twenty men are employed by this firm in seal and otter hunting, mostly Californians, at $25 to $39 per month. A few Chinese at $20 to $25.

5.—THE NORTH-ATLANTIC SEAL-FISHERY.

By A. Howard Clark.*

1. THE SEALING GROUNDS: EXTENT OF THE FISHERY.

Species taken.—"The seals hunted in the North Atlantic and Arctic waters belong chiefly to four species, namely, the harp, or Greenland seal, *Phoca* (*Pagophilus*) *grœnlandica*, the rough seal, *Phoca* (*Pusa*) *fœtida*, the harbor seal (*Phoca vitulina*), and the hooded seal (*Cystophora cristata*). The first, by its numbers, far exceeds in importance all the others together, and is hence the chief object of pursuit. Two other species, the bearded seal (*Erignathus barbatus*) and the gray seal (*Halichœrus grypus*), are also taken when met with, but both are rare, and neither enters largely into the general product of the seal-fishery. The Newfoundland seal-fishery is limited to the capture of the Greenland, harbor, and hooded seals. The latter is not, however, a regular object of pursuit, but is taken as opportunity favors, and some seasons but very few individuals of this species are met with. The harbor seal is taken along the shores, where it is permanently resident, but comparatively only in small numbers. The rough seal and the bearded seal are of considerable importance to the Greenlanders, the former especially, more than half of the seals taken by them belonging to this species.

"The pursuit of seals for their commercial products forms, as is well known, a highly important branch of industry, giving employment for a considerable part of each year to hundreds of vessels and thousands of seamen, as well as to many of the inhabitants of the seal-frequented coasts of Newfoundland, Greenland and Northern Europe. Although these animals are destitute of the fine soft coat of under-fur that gives to the fur-seals their great economic importance, their oil and skins render them a valuable booty. Seals have been hunted from time immemorial, but until within the last hundred years their pursuit was limited to the vicinity of such inhabited coasts as they were accustomed to frequent. For nearly a century, however, a greater or less number of vessels have been constantly employed in their capture on the ice-floes of the Arctic seas, or on the uninhabited coasts and islands of the far north. This industry, therefore, plays an im-

*This fishery is not at present participated in by the United States, yet in view of its great importance I give in some detail an account of its history and methods, quoting largely from Allen's "North American Pinnipeds."

portant part in the history of the species here under consideration, and is, moreover, of such high commercial importance as to render a somewhat detailed account of the general subject indispensable in the present connection. As all the species hunted in the northern waters belong to the North American fauna, the consideration of the subject involves other hunting-grounds than those geographically connected with the North American continent.

"The principal 'sealing-grounds' in the North Atlantic and Arctic Oceans are: (1) the West Greenland coasts; (2) Newfoundland, the coast of Labrador, and the islands and shores of the Gulf of Saint Lawrence, but especially the ice-floes to the eastward of these coasts; (3) the Spitzbergen and Jan Mayen seas; (4) Nova Zembla and the adjacent waters; (5) the White Sea. In addition to these districts (6) the Caspian Sea affords an important seal-fishery."*

EXTENT OF THE FISHERY.—Mr. Allen has given an extended statistical account of the seal-fisheries of the North Atlantic, from which it appears that along the West Greenland coasts seal hunting is mainly prosecuted by the natives of that country and is their chief means of support, the average annual catch amounting, according to Rink, to about eighty-nine thousand seals, the skins of about half of which are exported.

"Many seals," says Mr. Allen, "are taken at the Magdalen and other islands at the mouth of the Gulf of Saint Lawrence, as well as along the shores of Newfoundland, in nets or with the gun, but by far the greater part are captured on the floating ice to the eastward of Newfoundland, to which several hundred vessels annually repair at the proper season, and where alone the yearly catch aggregates about half a million seals. This, indeed, is the sealing-ground *par excellence* of the world, twice as many seals being taken here by the Newfoundland fleet alone as by the combined sealing fleets of Great Britain, Germany, and Norway in the icy seas about Jan Mayen, or the so-called 'Greenland Sea' of the whalemen and sealers.

"According to Charlevoix, thousands of seals were taken along the shores of the Gulf of Saint Lawrence as early as the beginning of the last century, but a high authority on the subject—Mr. Michael Carroll, of Bonavista, Newfoundland—states that the seal-fishery was not regularly prosecuted, at least in vessels especially equipped for the purpose, prior to the year 1763. As early as 1787 the business had already begun to assume importance, during which year nearly five thousand seals were taken. Twenty years later (1807) thirty vessels from Newfoundland alone were engaged in the prosecution of sealing voyages, and subsequently the number became greatly increased. In the year 1834 one hundred and twenty-five vessels, manned by three thousand men, sailed from the single port of St. John's; two hundred and eighteen vessels, with nearly five thousand men, from Conception Bay, and nineteen from Trinity Bay, besides many others from other ports, making in all not less than three hundred and seventy-five, with crews numbering in the aggregate about nine thousand men.† To these are to be added a considerable number from Nova Scotia (chiefly from Halifax) and the Magdalen Islands. In 1857 the Newfoundland sealing-fleet exceeded three hundred and seventy vessels, their 'united crews numbering thirteen thousand six hundred men.' The total catch of seals for that year was 500,000, valued at £425,000, provincial currency.‡ The business at this date seems to have attained its maximum so far as the number of men and vessels are concerned, the number of vessels subsequently employed falling to below two hundred, which has since still further decreased. Yet the number of seals annually captured has not apparently diminished, the business being prosecuted in larger vessels, which secure larger catches. According to statistics furnished by Governor Hill, C. B., of New-

* JOEL ASAPH ALLEN: History of North American Pinnipeds: Department of the Interior; Washington: 1880.
"† BONNYCASTLE: Newfoundland in 1832, vol. i, p. 159."
"‡ CARROLL: Seal and Herring Fisheries of Newfoundland, p. 7."

foundland, to the home government,* it appears that in 1871 the whole number of vessels employed in sealing was one hundred and forty-six sailing-vessels and fifteen steamers, manned by eighty-eight hundred and fifty men. The exports of seal products for that year from Newfoundland were 6,943 tuns of oil, valued at $972,020, and 486,262 skins, valued at $486,262, the catch for the year being about 500,000 seals, which were sold for the aggregate sum of $1,458,282. The single steamship Commodore, of Harbour Grace, brought in 32,000 seals, valued at £24,000 sterling. While the number of vessels employed in the Newfoundland seal slaughter had at this time declined more than one-half, and the number of men engaged was one-third less, it appears that the annual catch was equal to that of average seasons twenty years earlier.

"Prior to about 1866 the sealing fleet consisted wholly of sailing-vessels, but since that date a small but steadily increasing number of steamships have been added. In 1873, of the one hundred and seven sealing vessels fitted out from the ports of Newfoundland, nearly one-fifth were steamers. Notwithstanding, however, this comparative small number of vessels, the 'catch' for that year is said to have been 526,000.

"The number of vessels sailing from other provincial ports is usually small in comparison with the number from Newfoundland, and they are generally of smaller size."

2. AMERICAN SEALING VESSELS.

In this extensive fishery, producing annually hundreds of thousands of seal-skins and thousands of barrels of seal-oil, few vessels from the United States have ever participated. Occasionally vessels have been fitted from ports in New England to cruise for a time on the sealing-grounds, and then to go in pursuit of whales, but only two or three vesse ls have made the seal their sole pursuit.

One vessel from the United States that participated in this business was the ship McLennan, of New London, which from 1846 to 1853 took about 6,000 hair-seal skins, 600 barrels of seal-oil and a quantity of whale oil and bone. On her several voyages she was specially fitted for sealing as well as whaling, yet pursued the seal-fishery for only a limited period each year, preferring the larger game. Several other vessels have been similarly engaged, among them the Georgiana, George Henry, and the Amaret, afterwards the Rescue of Kane's expedition.

From 1860 to 1880 the Hudson Bay and Cumberland Inlet whaling fleet from the United States took about 10,000 hair-seal skins, valued at about 75 cents each, and about 1,000 barrels of seal-oil, valued at 40 cents per gallon.

The following account, by Capt. N. E. Atwood, of Provincetown, of a sealing trip to Newfoundland is worthy of record as a matter of history:

"In 1819 or 1820 the schooner Pilgrim, of Provincetown, 62 tons, o. m., fitted out for a sealing voyage, sailing about the middle of March for the ice-floes to the east of Newfoundland, where she joined the Newfoundland fleet of sealers. No one on board was acquainted with sealing. Before they went into the ice they fell in with a sealer from St. John's, with whom they talked. They entered the ice near each other, and the Pilgrim soon outsailed the Newfoundland vessel, so that by night he was nearly out of sight. At night they tied the vessel up to a small iceberg. The weather grew rough and the ice began to pound. They used the cedar poles they had brought for fenders, but they did no good. The stem of the vessel started, the bolts came out, and it turned around. After the ice closed, by piling ice on the after part of the vessel they got the stem out of the water and repaired damages. They then got out of the ice again and ran to the north,

"* Papers relating to Her Majesty's Colonial Possessions, part ii, 1873, pp. 143, 145."

where they entered the ice again, and when they got in it was Sunday. They were surrounded by seals. They would not touch them Sunday, but Monday they got 250 seals, and Tuesday they got 60. They got a few afterwards, which made up 450, and got out of the ice again. Afterwards they fell in with a Newfoundlander, and bought 40, and came home. When they got home the oil and the pelts did not fetch more than they had paid for them. They made about $13 to a share, having been gone six weeks, while the owners lost considerably by the venture. Two members of the crew, James Dyer and Joshua Nickerson, are living in 1879, the former seventy-two and the latter seventy-seven years old."

Mr. Earll obtained the information that the schooner Caleb, 54 tons, with standing fore topsail, engaged in sealing in 1829. She belonged at Deer Isle, Me., and took the seals at Magdalen Islands. The pelts and oil were brought home. Samuel Havelock and his brother each fitted a vessel at Mount Desert in 1829, and engaged in the seal-fishery at Magdalen Islands or Newfoundland.

The above vessels are the only American craft, other than whaling vessels, that engaged in the hair-seal fishery prior to 1870. In the latter year the steamer Monticello, 526 tons, manned by one hundred and seventy men, was sent out from Bay Roberts, Newfoundland. This steamer was owned by parties in New York City and Capt. Lorenzo Wilson, of Eastport, Me. She sailed three years to the seal-fishery from Newfoundland, the first year from Bay Roberts, under Captain Ludlow, but landed only 250 skins. The crew "panned" about 10,000 seals, but did not succeed in putting them on board because of an accident to the propeller. An action was taken in court to recover the missing seals, but the crew not being in a position to prove the claim the suit was abandoned. The second year, 1871, she sailed from Bay Roberts, under command of Capt. A. Bartlett, and captured about 22,000 seals, the oil of which was shipped to Boston and the skins to London, the catch being valued at $90,000. In 1872 she sailed from Catalina under Captain Murphy, and captured 3,000 seals. Her stem and stern posts and propeller being broken by the ice, she was obliged to abandon the voyage, and after arriving at Saint Johns, and finding the dock capacity not sufficient to take her up, she cleared for Boston, via Sydney, Cape Breton, with passengers, and while crossing the gulf she foundered. The passengers and crew were taken off by a fishing schooner and landed at St. Pierre.

The Monticello was not built for the seal-fishery, and not at all suited for such a voyage, being very flat on the floor, hollow bowed, with a very fine stern, which was the principal cause of the accident to the propeller.

Concerning this sealing steamer, the annual report for 1871 of the St. John's, Newfoundland, Chamber of Commerce, is reported, by a correspondent of the New York Weekly Post, to state that "the fitting out of the Monticello from a port in Newfoundland was clearly illegal; but the special and obnoxious condition of the enterprise was that she brought her seals into this port, manufactured them here, and was enabled to land the produce in the United States free of duty, while oils, the produce of British fisheries, are subjected there to a tax of from 20 to 40 per cent. on their value. This unjust state of things seems to the chamber to demand every effort of the public for its removal. Fair reciprocity in trade with the United States this colony desires, and would make all reasonable concessions to obtain; but it ought not, the chamber feels, be willingly tolerated that all shall be free to Americans here, while they persistently maintain these trade barriers against us."

An official correspondent in Newfoundland writes, under date of July 11, 1881, as follows: "There is no obstruction to either American steamers or sailing-vessels participating in the seal-fishery within 3 miles of the coast, and I consider that a large and profitable business could be

worked up by New Bedford and New London whaling steamers and sailing-vessels. Crews and labor are plentiful and cheap. Seals are generally found from 10 to 20 miles off the land, ranging from Cape Bonavista to Labrador."

3. THE PRODUCTS.

USE OF OIL, FLESH, AND SKINS.—The chief value of seals is their oil, so well known for its valuable properties for illuminating purposes and for the lubrication of machinery. "The amount annually obtained falls not far short of 90,000 tuns, with a total value of $1,250,000. Next in importance are the skins, which are nearly as valuable as the oil. From very early times they were used for covering trunks, the manufacture of knapsacks, and for many of the uses of ordinary leather. They have been extensively employed, as indeed they are still, for the manufacture of caps, gloves, shoes, and jackets. Of late many have been converted in England into lacquered leather, which is said to be of a superior quality, being beautiful and shining, and of firm texture, and can be furnished at moderate cost. The skins differ in value according to size and color, these varying, of course, with the species and with the age of the animal.

"As an article of food seals are of the utmost importance to the natives of Greenland and the northern tribes generally, they deriving from them the greater part of their subsistence. They have been found likewise not unpalatable by our Arctic voyagers, whose sustenance often for long periods has been mainly the flesh of these animals. The Eskimo and allied tribes of the north are well known to depend upon the seals, not only for their food, but for most of the materials for their boats and sledges, as well as for clothing and the various implements of the chase."*

In respect to the character of seal flesh as food, and the importance of these animals to the Eskimos, Dr. A. Horner, surgeon to the Pandora, thus refers to the general subject:

"From the length of time these people have inhabited this cold country, one naturally expects them to have found some particular food well adapted by its nutritious and heat-giving properties to supply all the wants of such a rigorous climate, and such is found to be the case, for there is no food more delicious to the tastes of the Eskimo than the flesh of the seal, and especially that of the common seal (*Phoca vitulina*). But it is not only the human inhabitants who find it has such excellent qualities, but all the larger carnivora that are able to prey on them. Seal's meat is so unlike the flesh to which we Europeans are accustomed, that it is not surprising we should have some difficulty at first in making up our minds to taste it; but when once that difficulty is overcome every one praises its flavor, tenderness, digestibility, juiciness, and decidedly warming after-effects. Its color is almost black, from the large amount of venous blood it contains, except in very young seals, and is, therefore, very singular looking and not inviting, while its flavor is unlike anything else, and cannot be described except by saying delicious. To suit European palates there are certain precautions to be taken before it is cooked. It has to be cut in thin slices, carefully removing any fat or blubber, and then soaked in salt water for from twelve to twenty-four hours, to remove the blood, which gives it a slightly fishy flavor. The blubber has such a strong taste that it requires an Arctic winter's appetite to find out how good it is. That of the bearded seal (*Phoca barbata*) is most relished by epicures. The daintiest morsel of a seal is the liver, which requires no soaking, but may be eaten as soon as the animal is killed. The heart is good eating, while the sweetbread and kidneys are not to be despised.

"The usual mode of cooking seal's meat is to stew it with a few pieces of fat bacon, when an excellent rich gravy is formed, or it may be fried with a few pieces of pork, or 'white-man,' being cut up with the seal, or 'black man.'

* ALLEN: *Op. cit.*

"The Eskimo make use of every part of the seal, and, it is said, make an excellent soup by putting its blood and any odd scraps of meat inside the stomach, heating the contents, and then devouring tripe, blood, and all with the greatest relish.

"For my own part I would sooner eat seal's meat than mutton or beef, and I am not singular in my liking for it, as several of the officers on board the Pandora shared the same opinion as myself. I can confidently recommend it as a dish to be tried on a cold winter's day to those who are tired of the everlasting beef and mutton, and are desirous of a change of diet. It is very fattening, and if eaten every day for several weeks together is likely to produce rather surprising effects.

"Seal's meat is a panacea for all complaints among these primitive people. Our Eskimo interpreter, 'Joe,' had a most troublesome cough when we left England, and was convinced he should not get rid of it until he had seal's flesh to eat. He would not look at any medicine offered to him on board, but shook his head and said, 'By and by, eat seal, get well.' His prescription turned out to be a very good one, for he had not long been feasting on his favorite food before he lost his cough, and we heard no more of it. For delicate persons, and especially young ladies and gentlemen who cannot succeed in making their features sufficiently attractive on chicken and cheesecakes, no diet is likely to succeed so well as delicate cutlets from the loin of a seal.

"For my own part I cannot help thinking that the diminution in the number of seals caught near the principal Danish settlements in Greenland has a great deal to do with the prevalence of consumption and other diseases among the native inhabitants of those places. Seals are becoming scarcer every year, and, in company with the bison of the North American prairies, will ere long be of the past, and leave the poor Greenlander and Red Indian to follow them."*

4. THE SEAL HUNT.

DESCRIPTION OF A SEAL HUNT.—The following description of the seal hunt is from Allen's History of North American Pinnipeds:

"The season for 'ice hunting' begins at the Newfoundland 'sealing grounds' about the first of March and continues for about two months. The seals are then on the ice-floes at a considerable distance from land, often several hundred miles. The same vessel, however, sometimes makes two, and, on rare occasions, three voyages during the season. About fifty years ago vessels engaged in sealing rarely left port before March 17, but more recently have sailed by the first of that month, and sometimes during the last days of February. This, Mr. Carroll claims, is too early, and tends greatly to the detriment of the interests of the sealers themselves, as they thus disturb the seals at a time when they should be left in peace, or before the 'whelping time' is over. He strongly advocates the prohibition by Government of the departure of any vessels for the sealing-grounds before March 15, since otherwise, he observes, the seal-fishery of Newfoundland may soon, and very soon, dwindle away to such a character that it will not be worth the risk of money to prosecute it.

"The vessels employed in the sealing business are 'pounded off in the hold,' or divided into small compartments to protect the pelts from injury by friction, as well as to preserve the cargo from shifting. The pelts are allowed to thoroughly cool before they are stowed, and are packed 'hair to fat, to prevent the fat from running.' The owners of sealing vessels find all the boats, sealing-gear, powder, shot, and provisions, in consideration of which they are entitled to one half of the seals; the men are entitled to the other half. In steamships the owners find everything required for the prosecution of the voyage, and receive two-thirds of the value of the seals, and the men one-third."†

* Land and Water, December 18, 1875.

† CARROLL: Seal and Herring Fishery of Newfoundland, p. 9.

"The voyages are attended with much danger, great hardships, and uncertainty of results, a 'good rip' being entirely a matter of chance. Not unfrequently the vessels become 'jammed in the ice,' and if not crushed in the pack-ice may be detained for weeks before being able to force their way to the ice-floes, which form at this season the grand rendezvous of the seals. The incidents and dangers ordinarily attending a sealing voyage, as well as the manner of capturing and disposing of the seals, have been so graphically set forth by Professor Jukes in his entertaining and instructive work entitled 'Excursions in Newfoundland,' that I transcribe in this connection portions of his account of a sealing cruise participated in by him in March, 1840, in the brigantine Topaz, Captain Furneaux, of St. John's, Newfoundland. Having, after a week's arduous cruise, fallen in with the seals and captured a few young ones, he says: 'We soon afterwards passed through some loose ice, on which the young seals were scattered, and nearly all hands were overboard, slaying, skinning, and hauling. We then got into another lake of water and sent out five punts. The crews of these joined those already on the ice, and dragging either the whole seals or their pelts to the edge of the water, collected them in the punts, and when one of these was full brought them on board. The cook of the vessel, and my man Simon, with the captain and myself, managed the vessel, circumnavigating the lake and picking up the boats as they put off one after another from the edge of the ice. In this way, when it became too dark to do any more, we found we had got 300 seals on board, and the deck was one great shamble. When piled in a heap together the young seals looked like so many lambs, and when occasionally from out of the bloody and dirty mass of carcasses one poor wretch, still alive, would lift up its face and begin to flounder about, I could stand it no longer; and, arming myself with a handspike, I proceeded to knock on the head and put out of misery all in whom I saw signs of life. After dark we left the lake and got jammed in a field of ice, with the wind blowing strong from the northwest. The watch was employed in skinning those seals which were brought on board whole, and throwing away the carcass. In skinning, a cut is made through the fat to the flesh, a thickness generally of about 3 inches, along the whole length of the belly, from the throat to the tail. The legs, or flippers, and also the head, are then drawn out from the inside and the skin is laid out flat and entire, with the layer of fat or blubber firmly adhering to it, and the skin in this state is called the "pelt," and sometimes the "sculp." It is generally about 3 feet long and 2½ wide, and weighs from 30 to 50 pounds. The carcass when turned out of its warm covering is light and slim, and, except such parts as are preserved for eating, is thrown away.

"'The next day,' continues Mr. Jukes, 'as soon as it was light, all hands were overboard on the ice, and the whole of the day was employed in slaughtering young seals in all directions and hauling their pelts to the vessel. The day [March 13] was clear and cold, with a strong northwest wind blowing, and occasionally the vessel made good way through the ice, the men following her and clearing off the seals on each side as we went along. The young seals lie dispersed here and there on the ice, basking in the sun, and often sheltered by the rough blocks and piles of ice, covered with snow. Six or eight may sometimes be seen within a space of 20 yards square. The men, armed with a gaff and a hauling rope slung over their shoulders, disperse about on the ice, and whenever they find a seal strike it a heavy blow in the head, which either stuns the animal or kills it outright. Having killed or at least stunned all they see within a short distance, they skin, or, as they call it, sculp them with a broad clasp-knife, called a sculping-knife, and making two holes along the edge of each side of the skin they lay them one over another, passing the rope through the nose of each pelt and lacing it through the side holes in such a manner that when pulled taut it draws them into a compact bundle. Fastening the gaff in this bundle, they then put the rope over the shoulder and haul it away over the ice to the vessel. In this way they bring

in bundles of pelts, three, six, or even seven at a time, and sometimes from a distance of two miles. Six pelts, however, is reckoned a very heavy load to drag over the rough and broken ice, leaping from pan to pan, and they generally try to keep two or three together to assist each other at bad places, or to pull those out who fall into the water. The ice to-day was in places very slippery, and in others broken and treacherous, and as I had not got my boots properly fitted with "sparable" and "chisels" I staid on board and helped the captain and cook in managing the vessel and whipping in the pelts as they were brought alongside. By 12 o'clock, however, my arms were aching with the work, and on the lee side of the vessel we stood more than knee-deep in warm seal-skins, all blood and fat. Some of the men brought in as many as sixty each in the course of the day, and by night the decks were covered in many places the full height of the rail. As the men came on board they occasionally snatched a hasty moment to drink a bowl of tea, or eat a piece of biscuit and butter; and as the sweat was dripping from their faces, and their hands and bodies were reeking with blood and fat, and they often spread the butter with their thumbs, and wiped their faces with the backs of their hands, they took both the liquids and the solids mingled with the blood. The deck, of course, when the deck could be seen, was almost as slippery with it as if it had been ice. Still there was a bustle and excitement in the scene that did not permit the fancy to dwell on the disagreeables, and after a hearty refreshment the men would snatch up their gaffs and hauling ropes, and hurry off in search of new victims; besides, every pelt was worth a dollar. During this time hundreds of old seals were popping up their heads in the small lakes of water and holes among the ice, anxiously looking for their young. Occasionally one would hurry across a pan in search of the snow-white darling she had left, and which she could not recognize in the bloody and broken carcass, stripped of its warm covering, that alone remained of it. I fired several times at these old ones in the afternoon with my rifle from the deck, but without success, as unless the ball hits them on the head it is a great chance whether it touch any vital part, the body being so thickly clothed with fat. In the evening, however, Captain Furneaux went out on the ice and killed two with his sealing gun, loaded with seal shot. The wind had now sunk to a light air, and the sun set most gloriously, glancing from the golden west across the bright expanse of snow, now stained with many a bloody spot, and the ensanguined trail which marked the footsteps of the intruders on the peacefulness of the scene. Several vessels came up near us from the south in the afternoon; but, notwithstanding all the slaughter, the air as night closed in resounded with the cries of the young seals on every side of us. As the sunlight faded in the west, the quiet moon looked down from the zenith, and a brilliant arch of aurora crossed the heavens nearly from east to west, in a long waving line of glancing light, slowly moving backward and forward from north to south across the face of the moon.

"'Early in the morning [of the next day, March 14] the crew were out on the ice, and brought in 350 seal. The number hauled in yesterday was 1,380, making the total number now on board upwards of 2,000. After suffering the pelts to lie open on deck for a few hours, in order to get cool, they are stowed away in the hold, being laid one over the other in pairs, each pair having the hair outwards. The hold is divided by stout partitions into several compartments, or pounds, to prevent too much motion among the seal-skins and keep each in its place. The ballast is heaved entirely out as the pelts are stowed away, and the cargo is trusted to balance the vessel. In consequence of neglecting to divide the hold into pounds in one of his earlier voyages, Captain Furneaux told us he once lost his vessel. He was detained on his return, with 5,000 seals on board, by strong contrary gales, which kept him at sea till by the continued motion and friction his seals began to run to oil. The skins then dashed about from one side of the hold to the other with every roll of the vessel, and he was obliged to run before the wind, which was then blowing from

the northwest. The oil spread from the hold into the cabin and forecastle, floating over everything and forcing the crew to remain on the deck. They got up some bags of bread, and by putting a pump down through the oil into the water casks they managed to get fresh water. After being in this state some days, he and his crew were taken out of the vessel by a ship they luckily fell in with, and carried to St. Johns, New Brunswick; but his own vessel, with her once valuable cargo, and almost all the valuable property of himself and his crew, were necessarily abandoned to the mercy of the wind and waves, and what became of her was never known. This was a good practical lesson as to the proper method of stowing a cargo of seals, and one not likely to be forgotten. In the present instance, therefore, the pounds were both numerous and strong.'*

"In a few days more they completed their cargo and returned to St. John's with the vessel loaded with between 4,000 and 5,000 seals. 'It was a very good season,' Professor Jukes further remarks; 'one vessel in two trips brought in 11,000 seals, and the total take this year [1840] must have been considerably upward of 500,000.'

"Mr. Reebs states that in 1866 one vessel, which made two successful trips to the ice, brought into St. John's Harbor 25,000 seals."†

"To complete the picture here partially drawn of the seal-fishery as pursued by the Newfoundland seal hunters, I quote still further from the same author, respecting the scenes incident to a sealing voyage of forty years ago. Under date of March 5 Mr. Jukes writes: 'This morning was dark and foggy, with the wind at southeast. At 7 o'clock, after making a tack or two about an open lake and finding no channel, we dashed into the ice with all sails set, in company with two other vessels, on a north-northwest course. The ice soon got firmer, thicker, and heavier, and we shortly stuck fast. "Overboard with you, gaffs and pokers," sang out the captain, and over went, accordingly, the major part of the crew to the ice. The pokers were large poles of light wood, 6 or 8 inches in circumference and 12 or 15 feet long. Pounding with these, or hewing the ice with axes, the men would split the pans near the bows of the vessel, and then, inserting the ends of the pokers, use them as large levers, lifting up one side of the broken piece and depressing the other, and several getting round with their gaffs, they shoved it by main force under the adjoining ice. Smashing, breaking, and pounding the smaller pieces in the course the vessel wished to take, room was afforded for the motion of the larger pans. Laying out great claws on the ice ahead when the wind was light, the crew warped the vessel on. If a large, strong pan was met with, the ice-saw was got out. Sometimes a crowd of men, clinging round the ship's bows, and holding on to the bights of rope suspended there for the purpose, would jump and dance on the ice, bending and breaking it with their weight, shoving it below the vessel, and dragging her on over it with all their force. Up to their knees in water, as one piece after another sank below the cut-water they still held on, hurrahing at every fresh start she made, dancing, jumping, pushing, shoving, hauling, hewing, sawing, till every soul on board was roused into excited exertion. They continued these exertions the whole day, relieved occasionally by small open pools of water, and in the evening we calculated that we had been 15 miles. It continued foggy all day, and at night it began to rain. We had seen no vessel since morning—nothing but a dreary expanse of ice and snow, stretching away into the misty horizon. The next day the wind was from the west, and the sky fine and clear. Several vessels were near us, and several more on the horizon; the ice became thicker, stronger, and more compact. We made a few miles in the morning, and stuck fast the rest of the day in a very large pan or field of ice, sawing, axing, prising, warping, &c., as yesterday.'‡

"* Excursions in Newfoundland, vol. 1, pp. 272–280."
"† Zoölogist, 2d ser., vol. vi, 1871, p. 2548."
"‡ Excursions in Newfoundland, vol. 1, pp. 261–263."

"This, in short, was the history of their daily experiences for a week, at the end of which time they first heard the cry of the seals, and entered upon the work of slaughter."*

6.—THE SEA-OTTER FISHERY.

By Henry W. Elliott.†

1. THE DISCOVERY AND THE GEOGRAPHICAL DISTRIBUTION OF THE SEA-OTTER.

The sea-otter (*Enhydra marina*), which yields to the votaries of fashion and lovers of luxuriant trappings the richest, the finest, and the costliest fur known to man, is, like the fur-seal, another illustration of an animal long cognizant to and highly prized in the commercial world, yet respecting the habits and life of which nothing definite has been ascertained or published; indeed, for that matter, it is exceedingly difficult to trace the figures representing the large volume of fur business transacted under this head.‡

Perhaps the primary reason for this deficiency of knowledge in respect to the biology of the sea-otter is due to the fact that until quite recently none save the natives hunted them, and no naturalist or observer of our own race, who has been qualified, ever enjoyed an opportunity of seeing the "kalan" so as to study it in a state of nature; for, of all the shy, wary, sensitive beasts, upon the capture of which man sets any value, this creature is the most keenly on the alert and difficult to obtain.

Limited geographical distribution.—Another salient point touching the restricted distribution of this solitary marine inhabitant: It is a little strange that its life seems to be principally confined to our own northwest coast and Bering Sea, though, as we shall point out, it has quite an extensive distribution over the Kurile Islands and the Kamtchatkan coast. A truthful account of the strange, vigilant life of the sea-otter and of the hardships and perils encountered by its human hunters would surpass in novelty and interest the most attractive work of fiction. I mention this with much emphasis, because throughout the following narrative many instances

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* Allen: *op. cit.*

† I wish, however, to have it plainly understood that what I here present as my contributiton to the life-history of the sea-otter is due, chiefly, to diligent inquiry and examination of sea-otter hunters, at Oonalashka, and their friends. In all my knocking about over Alaskan waters and down the northwest coast, I have never seen a live *Enhydra;* the villainous weather which prevailed during September, 1874, prevented me from visiting Saanak in the "Reliance," where the main sea-otter camp of all this region is located, and which is composed principally of Oonalashka and Borka Aleuts. Thus, I am able to offer very little of real biography; but, scanty as is my material, still it seems to cover a great deal more ground than hitherto cultivated in this direction, hence I submit it.

‡ It is a very curious fact that Steller, who knew well what a sea-otter was, should have ever described one as a new and strange animal to him—a "sea ape." It was finally termed so by certain students of Swainson, who declared that such an animal must be in existence in order that his "circular series of types in the Quadrumana should be completed." When Steller, in August, 1740, was with Bering on the "St. Peter," in sight of the coast near Mount St. Elias, he saw a very singular animal which he called a sea ape. "It was five feet long; the head was like a dog's; the ears were sharp and erect, and the eyes large; there was on both lips a sort of a beard * * *. It was full of frolic and played a thousand monkey tricks; sometimes swimming on one side and sometimes the other of the ship, looking at it with great amazement. It would come so near the ship that it could be touched with a pole; but if any one stirred it would immediately retire. It often raised one-third of its body out of the water and stood erect for a considerable time; it then suddenly darted under the ship and reappeared in the same attitude on the other side; it would repeat this manœuver thirty times together. It would frequently bring up a sea-plant not unlike a bottle gourd, which it would toss about and catch again in its mouth, playing numberless fantastic tricks with it."—[Pennant's trans. Hist. Brit. Quad., vol. ii, p. 301.]

Father Shaiesnekov, at Oonalashka, in 1874, gave me an account of the gambols of the *Enhydra* that reads substantially as the above comes from Steller, who saw a sea-otter sure enough.

will arise, coupled with the life and chase of the sea-otter, which may strike the reader's mind as the evolution of romantic thought.

THE IMPORTANCE OF THE SEA-OTTER TO THE PROGRESS OF GEOGRAPHICAL EXPLORATION.—To the sea-otter geographers owe their early knowledge of Russian-America; had it not been for the greed and covetousness excited in the minds of fur-dealers by the beauty and costliness of its peltries which Altasov and his Tartars first secured, towards the close of the seventeenth century, on the Kamtchatkan coast,—had it not been for this incentive the exciting, pushing, aggressive, indomitable search made by the Russian "Promishlyneks" would never have been undertaken. Indeed, for that matter, much of the glory which old Titus Bering is enveloped with, as a discoverer, was not due to his love for geography or hydrography, but it was the direct stimulation of fur hunters for a rich return. They backed him; they fitted out his small, miserable vessels, which, in the light of the present hour, make his voyages fairly fabulous, when the rickety, "ram-shackley" construction of his rough Amoor-built shallops is understood.

THE SEA-OTTER KNOWN TO THE JAPANESE.—The Japanese had, however, from time immemorial, perhaps as far back as a thousand years or so before the discovery of America by Columbus, been entirely aware of the existence and the value of this animal. Its shining coat was the fur of their mighty tycoons, valued as ingots of gold or precious stones. But true to their conservative nature, what they had within their border sufficed, and what they knew slept in the recesses of an unknown language to the rest of the civilized world, and sleeps there to-day, for all I know.

RUSSIAN SEARCHINGS FOR THE SEA-OTTER.—It was not, therefore, until the Russians opened up the trade, swiftly supplemented by the third voyage of Captain Cook and the aroused attention of the Hudson Bay Company, which speedily began to search the coasts of British Columbia and Oregon in those early days—it was not until this action was taken, towards the close of the seventeenth century and the beginning of the eighteenth, that the sea-otter became known, first to the courts and then to the nobility of the civilized world. It is as favorably recognized to-day and valued just as highly in the markets, being, in this respect, as fixed in its intrinsic value as the demand on any of the precious metals.*

When the Russians first opened up the Aleutian Islands, and the Hudson Bay traders scoured the coasts of Puget's Sound and Oregon, they found the natives commonly wearing sea-otter cloaks, with which they parted in the beginning for a trifle, not placing a special value on the animal, as they did upon the hair-seal or the sea-lion, the flesh and skins of the latter being vastly more palatable and serviceable.

But the offers of the greedy traders soon set the natives after them in hot haste, and the kalan became the first in importance and the objective point of every hunting expedition throughout Russian America, and the northwest coast as far down as San Francisco. It was the prime factor to the success of every fur-hunting expedition, in which over ten thousand hunters were annually engaged, from 1741 until its practical extermination in 1845.

EARLY ABUNDANCE.—During the first few years after discovery the numbers of sea-otters taken all along the Aleutian chain, and down along the whole northwest coast as far as the southern boundary of Oregon, were very great, and, compared with what are now captured, seem perfectly fabulous. For instance, we are told when the Pribylov Islands were first discovered, two sailors, Lukannov and Kiekov, killed at Saint Paul's Island during the first year's occupation, 5,000, but the next year they secured less than 1,000 and six years after not a single sea-otter reappeared, and none have been there since.

* A prime sea-otter skin is worth to-day $150. An average good skin $100. Exceptionally fine skins have been sold as high as $350 each, but these instances are not common.

When Shellikov's party first visited Cook's Inlet they secured 3,000; during the second year 2,000; in the third season only 800, and in the succeeding year they obtained 600, and finally, in 1812, less than 100, and since then not one-tenth of that number, although I am told, at the date of this writing, that during the past two years more than 500 sea-otters annually have been taken on the coasts of Cook's Inlet, much to the surprise of the oldest inhabitant and the great gratification of the energetic hunters.

During the first visit made by the Russians to the Gulf of Yakootat, in 1794, 2,000 sea-otters were taken. But they diminished so rapidly that in 1799 the most persistent scouring of the hunters secured less than 300.

In 1798 a large party of Russians and Aleuts captured in Sitka Sound and that neighborhood 1,200 skins, besides those for which they traded with the Woloshes, or natives, who had fully as many more. In the spring of 1800 a few American and English vessels came into Sitka Sound, anchored off the small Russian settlement there and traded with the Indians for over 2,000 skins, getting this native barter away from the Russians by giving fire-arms, powder, ball, and even liquor, which the Russians did not dare to do, leaving them, as they were, in fixed settlements throughout the country of the aborigines.

In one of the early years of the Russian-American Company, about 1804 I believe, Baranov went to the Okhotsk from Alaska with 15,000 sea-otter skins in the hold of a single ship, which he himself convoyed; and they were worth then just as much as they are now, namely, fully $1,500,000.

EARLY DECREASE IN NUMBERS.—The result of this warfare upon the sea-otters, faintly sketched above, with ten hunters then where there is one to-day, was not long delayed. Everywhere throughout the whole coast line frequented by them the rapid disappearance of the otter set in, and it is not difficult to find places where 1,000 had been as easily obtained as 25 or 30 could now be secured.

A Russian chronicler* says, and I translate him literally: "The numbers of several kinds of animals are growing very much less in the present as compared with past times; for instance the company here (Oonalashka) regularly killed more than 1,000 sea-otters annually; now (1835) from 70 to 150 are taken; and there was a time, in 1826, when the returns from the whole Oonalashka district (the Aleutian Isles) where only 15 skins." * * * "Sea-otters are distinguished above everything, on account of their great value and small numbers. There was a time when they were killed by thousands; now, only by hundreds. There are plenty of places where formerly there were great numbers of sea-otters, but now not one is to be seen or found. The reason for this is most evident; every year, hunted without rest, they have fled to places unknown and without danger."

EFFECT OF THE DECREASE.—It is also a fact, coincident with this diminution of the sea-otter life, that the population of the Aleutian Islands fell off almost in the same proportion. The Russians regarded the lives of these people with the same respect—and no more—than they did those of dogs, and treated them accordingly. They took on one occasion, under Baranov and his subjects, hunting parties of from 500 to 1,000 picked Aleuts 1,100 or 1,200 miles away from and to the eastward of their homes, conveying them in skin "baidars" and "bidarkies," traversing one of the wildest and roughest of coasts, and using them not only for the severe drudgery of sea-otter hunting, but also to kill the Koloshians and other savages, all the way up and down the coast. This combination of hunting, exposure, and war-like destruction soon destroyed them, and very few of these unhappy men ever got back alive to the spots of their birth, to their wives and their children.

* BISHOP VENIANMINOV: Zapieskie ot Oonlaashkenskaho Otdayla; St. Petersburg, 1842.

CONDITION OF THE BUSINESS WHEN CEDED TO THE UNITED STATES.—When the Alaskan Territory came into our possession the Russians were taking between 400 and 500 sea-otters from the Aleutian Islands and south of the peninsula of Alaska, with perhaps 150 from Kenai, Yakootat and the Sitkan district. The Hudson Bay Company and other traders were then getting about 200 more each year from the coast of Queen Charlotte's and Vancouver's Island and off Gray's harbor, near the mouth of the Columbia River, Washington Territory—an annual average yield of less than 1,000 skins from the whole Russian-American and northwest coast.

This is interesting, because an extraordinary excess of these figures is recorded by the results of the last year's catch in Alaska, for, instead of securing less than 700 skins, as obtained by the Russians, our traders handled in 1880 nearly 6,000 skins. This immense difference is not due to the fact of there being a proportionate increase of sea-otters, but rather, in my opinion, to the organization of hunting parties fired by the same spirit and competitive ardor as that which animated and shaped the hunting during early days of Alaskan discovery.

This keen competition of our traders, it seems to me, will in a short time ruin the business if some action is not taken by the Government, although the Treasury Department has, agreeably to my recommendation in 1874, made a very promising beginning in this matter. And, to the credit of the traders up there, it should be said that, while they cannot desist, for if they do others will step in and profit at their expense, yet they are anxious that some prohibition should be laid upon the business. This can be easily done and in such a manner as to perpetuate the sea-otter, not only for themselves but for the natives, five thousand of whom are wholly dependent upon this hunting for a living, which lifts them above the barbarous life of savages.

BREEDING-GROUNDS OF ALASKA.—Over two-thirds of all the sea-otters taken in Alaska are secured in those small areas of water and little rocky islands, and on the reefs around the islands of Saanach and the Chernobours, which proves that these animals, in spite of the incessant hunting all the year round on this marine ground, seem to have some particular preference for it to the practical exclusion of nearly all the rest of the coast in the Territory.

I think that this is due, perhaps if not wholly so at least in part, to the fact that those crustaceans and mollusks upon which the kalan feeds are secured here by that animal in the greatest profusion and constancy of supply; otherwise, I cannot see why it should, in spite of its intensely suspicious and wary nature, hug a coast that literally bristles with human enemies and entails its wholesale destruction annually. Again, these reefs and rocky shoals, before indicated, furnish an anchorage to immense areas of kelp, upon the semi-submerged masses of which, I believe, the sea-otter breeds. I think it breeds there and there only, because I cannot find a scintilla of evidence showing that there is any spot of landing ground about an island or along the main coast which has ever been occupied by the *Enhydra* for the purpose of breeding.*

SEA-OTTER AT STRAITS OF FUCA.—It is also noteworthy that nearly every one of the sea-otters taken below the Straits of Fuca are shot by the Indians and white hunters off the beach in the surf at Gray's Harbor, all shot within a stretch of less than 20 miles. Here every year some fifty to one hundred are taken in this manner, while not half that number can be obtained from

* The gigantic *Nereocystis lütkeanus*, with stems resembling clothes-lines, sometimes over 300 feet in length, which are supported by large air-vessels, crowned with bunches of chicotomous leaves, each 30 and 50 feet in length. This submarine forestry, when disengaged from its anchorage, floats in large raft-like aggregations here and there all over Bering Sea and the North Pacific. Upon these floating fuci islands the sea-otter brings forth its young; or else, I know of no other place where this act of reproduction culminates. It is well established by the concurrent testimony of sea-otter hunters during the last century that this animal does not repair to land or reef during this period of its life and habit.

all the rest of the Oregon and Washington coast line. There is nothing in the external appearance of this reach of coast, so favored by these animals, to cause its selection, except perhaps that it may be a little less rocky. It is shoaler and more sandy, but that signifies nothing.

EFFECTS OF OVERHUNTING.—As matters are now conducted in Alaska by the hunting parties, the sea-otters do not have a day's rest during the whole year. Parties relieve each other in succession and a continual warfare is maintained. This persistency is stimulated by the traders and is rendered still more deadly to the sea-otter by the use of rifles which, in the hands of the young and ambitious natives, in spite of the warnings of the old men, must result in the extermination of these animals, unless some authority is exerted to prohibit the use of fire-arms on the grounds. These same old men, who object to the use of powder and ball, are compelled, in order successfully to compete with their rivals, to drop their time-honored bone-spears and arrows and themselves take up fire-arms in self-defence. So the bad work goes on too rapidly, though the majority of the natives, and all the reputable traders, deprecate it.

CALIFORNIA SEA-OTTER.—Professor Jordan has derived the following information about the capture of sea-otter at Santa Barbara, Cal.:

Messrs. Rogers Bros. have a schooner (the Surprise) which carries Chinamen to the various islands to catch abalones, which also supplies parties of hunters on the same islands who are shooting seal, and is otherwise engaged in obtaining the skins of the sea-otter.

This animal lives in the kelp of Anacapa, San Miguel, and other islands, and is shot with some difficulty. Its fur is very valuable, the skins being worth from $2.50 to $110 each, according to size and quality. Mr. Rogers estimates that in 1880 75 skins were obtained, averaging $50 each or $3,750.

The animals go in schools of forty to fifty (?), and are shot from small boats. Only the skins are utilized. The fur is always prime on the sea-otter. No distinction of season is apparent in the abundance of the animals or the quality of the fur.

2. THE HABITS OF THE SEA-OTTER.

SIZE OF SEA-OTTERS.—An adult kalan is an animal not much larger than a mature and well conditioned beaver (*C. canadensis*). It will measure from the tip of its tail, which is short, to the extremity of the muzzle, 3½ to 4½ feet, the tail not being over 6 to 8 inches long, and it has a proportionate girth of a little over 2 feet; the skin lies upon it, however, in a very different manner from that peculiar to the giant rodent above cited, with which I have just compared it as to size, for the folds of the otter's hide, when seized by the hand, seem to stretch and rise from the body just as the skin does on the scruff of a puppy's neck. In other words, the skin of the animal seems to be big enough for a creature twice its anatomical bulk. There is no sexual dissimilarity in color or size amongst the adults, and both manifest the same intense shyness and aversion to man, coupled with the greatest solicitude for their young, which they bring into existence at all seasons of the year. The natives get young pups every month in the calendar. As the natives have never caught the mothers bringing forth their offspring on the rocks, they are disposed to believe that the birth takes place on kelp beds, in pleasant or not over-rough weather. The mother otter bears a single pup, which is only about 15 inches long when born, and provided from that time until it is a month or two old with a coat of coarse, brownish, grizzled fur; head and nape brindled grayish, rufous and white, with the roots of the hair growing darker to black towards the skin. The feet, as in the adult, are very short, webbed, and brownish, with nails like a dog, the fore paws being exceedingly feeble and small, all covered with a short, fine bister-brown hair or fur. From this poor condition of the pelt at birth they improve as they grow older, though

slowly; it becomes darker, finer, thicker, and softer, so that by the time they are two to three years of age they are prime, though the animal is not full-grown under its fourth or fifth year. The white nose and mustache of the pup are not changed in the adult; the whiskers are white, short, and stiff.

When the skin is taken from the body the native makes but one cut in it, and that is at the posterior; the body is turned literally inside out. The skin is next air-dried and stretched, so that it then gives the erroneous impression of an animal at least 6 feet and over in length, with a disproportionately lesser girth, suggestive of the shape of a weasel or mink.

VARIETIES OF SKINS.—Owing to the number of young skins brought in to the traders' hands by the natives, there is quite a variety in the shading of the pelts. The prime skins are, however, by their rare beauty, instantly distinguishable; there is the characteristic shimmering gloss and velvety sheen always apparent in a fine specimen; the fur, when blown open by the inspectors, shows much lighter towards its roots than upon the surface, and extending over all are scattered glistening hairs, whitish to pure white, which add greatly, or rather curiously, to the beauty of the coat.

SWIMMING HABITS.—The feet are so small that really nothing of the whole expansion of the sea-otter's skin is lost when they are cut off. I should say, however, that the hind flippers evidently are the swimming or propulsive organs. They, compared with the impotent tiny fore feet, are large and strong, and webbed between the toes like those of a duck. The natives say that this creature swims with surprising rapidity and is a famous diver; and that in its desperation and determination not to be captured alive, it will deliberately jam itself into rocky interstices and crevices below the surface of the water, from which it never rises.

SEA-OTTER NOT GREGARIOUS.—They are not gregarious to any noteworthy extent, seeming to go about in solitary, isolated pairs, though the younger of their kind do undoubtedly gather together in bodies of forty or fifty, with a sprinkling of a few parent otters; and, at times, so far forget themselves as to crawl *en masse* upon some lonely rocky reef awash, or clamber over the bowlders of an island beach.

NURSING THE YOUNG.—The female has two teats only, and they resemble externally those of a cat; they are placed between the hind limbs on the abdomen. The pup nurses a year at least, and longer if its mother has no other. The maternal otter is said to lie upon her back in the water—or upon the rocks, as the case may be—when she is surprised and desires to protect her young. She clasps the pup in her fore paws, and, turning her back to the danger, receives the Aleutian spear or the instantaneous death wound from the bullet; but desert her young, never.

SHEDDING HABITS.—The natives also assured me that as these skins, taken by them during every month of the year, never show at any season those signs of shedding and staginess so marked in the seal, they do not renew their pelage by that process, but that it grows and falls out just as the hair on our heads does. There seems to be a reason for this peculiarity in the fact that they are in the water at all times and must be ready to take to it at any moment.

SLEEPING HABITS.—The natives say that the sea-otter mother sleeps in the water on her back with her young clasped between her fore paws. The pup cannot live without its mother, though frequent attempts have been made by the Aleuts to raise them, as they often capture them alive. They have no commercial value, but, like other species of wild animals, it seems to be so deeply imbued with fear and distrust of man that it invariably dies from self-imposed starvation.

FOOD.—Their food, as might be inferred from the flat molars of dentition,* is almost entirely

* The remarkably concise and thorough discussion of the dentition of this animal, which Dr. Elliot Coues gives in his "Fur-Bearing Animals," pp. 332 to 334 inclusive, renders it simply superfluous for me to attempt its repetition here. This little brochure of the doctor's should be in the hands of every naturalist, at home or abroad.

composed of clams, mussels, and sea-urchins (*Echinoderms*), of which they are very fond. The shells of the last-mentioned animal they are said to break by striking them together, one held in each fore paw, and suck out the contents as they are fractured by these efforts. Of this, however, I am skeptical, for their puny fore hands do not, in my opinion, warrant any such action. They also undoubtedly eat crabs and small fishes, perhaps large ones, together with the juicy, tender fronds of kelp or sea-weed.

They are not polygamous, and it is very rarely, indeed, that more than one individual is ever seen at a time when noticed out at sea.

THE SEA-OTTER AT PLAY.—They are said to be exceedingly playful, and I am assured by several old sea-otter hunters that they have watched the kalan for more than half an hour as it lay upon its back in the water, and tossed a piece of seaweed up in the air alternately from paw to paw, taking all this time great delight in catching it before it could fall into the water; they also told me that it was tireless in its manifestation of affection for its young, and would humor the juvenile gambols of its offspring for hours at a time.

SENSE OF HEARING AND SMELL.—The quick hearing and the acute smell possessed by the sea-otter are not surpassed by any other creatures known to sea or land. They will take alarm and leave from the effects of a small fire as far as 4 or 5 miles to the windward of them, and the footsteps of man must be washed by many an ebb and flood before its traces upon the beach cease to alarm this animal and drive it from landing there, should it happen to approach for that purpose.

PHYSIOGNOMY.—The physiognomy of the sea-otter is ugly, its small, glittering, snaky, black eyes enhance the *mal contour* of its repulsive globose face. The ears are insignificant, situated remarkably low down, far below the eyes, and in fact little above the level of the commissure of the mouth. They are very small, flat, obtusely pointed, and sparsely and very shortly pilose outside, and only partially furry within.

3. METHODS OF CAPTURE.

There are four principal methods of capturing the sea-otter, namely, by surf-shooting, by spearing surrounds, by clubbing, and by nets.

SURF-SHOOTING.—This method is the common one, but has only been in vogue among the natives for a short time. The practice is borrowed from the keen hunting of our own people along the Oregon coast. The young Aleuts of Alaska have nearly all been supplied with rifles by the traders, and with these rifles they patrol the shores of the islands and inlets, and whenever a sea-otter's head is seen in the surf, even at 1,000 yards, they fire at it. The great distance and the noise of the surf prevent the sea-otter from taking alarm until it is hit, provided the wind blows right; and in nine times out of ten when it is hit in the head, which is the only part ever exposed, the shock is fatal and the hunter waits patiently for hours until the surf brings his quarry when it is too rough for him to venture out in his "bidarkie." This shooting is kept up now the whole year round, and this constant "pop," "pop," "pop," by vigilant, experienced, and tireless marksmen is the only danger that threatens the sea-otter with extinction.

The practical result of the destruction of the sea-otter in Alaska means simply the reduction of the entire Aleutian population to a savage life and method of existence. It is therefore a subject well worthy the serious attention of our Government, especially the Secretary of the Treasury, upon whose action the entire responsibility is devolved by Congress. He has it in his power to protect these interests, and he should not neglect it.

THE SPEARING SURROUND.—This is the orthodox native system of capture. It is the method of their far-away ancestors, and it reflects the highest credit upon the Aleuts as bold, hardy watermen.*

A party of fifteen or twenty "bidarkies," with two men in each as a rule, all under the control of a chief elected by common consent, set out in pleasant weather, or weather not too rough, and spread themselves in a long line, slowly paddling over the waters where sea-otters are most usually found, or where they expect to surprise them. When any one of these hunters discovers an otter, asleep most likely in the water, he makes a quiet signal by lifting his paddle or throwing up his arms; not a word is spoken or a paddle splashed while they are scouring on this line of hunting.

He darts toward the animal, but generally the alarm is taken by this sensitive creature, which instantly dives before the Aleut can get near enough to throw his spear. The hunter, however, keeps right on and stops his canoe directly over the spot where the otter disappeared, leaving the circling rings of water in displacement with the floating bubbles from its quick-caught breath. The other hunters, taking note of this action and of the position of this hunter, instantly deploy and scatter, forming a circle of half a mile wide around the place where he last was seen, and patiently wait for the reappearance of the surprised animal, a reappearance which must take place at any time within from fifteen to thirty minutes, for this creature must come to the surface to breathe. As soon as this happens, the hunter nearest to it in turn again darts forward in the same manner as his predecessor did, while all hands shout and throw up their spears to make the animal dive again, thus giving it scarcely an instant in which to recover itself and expel the surcharged and poisoned air from its long-loaded lungs. A sentry is again placed over this second diving wake, as before, and the circle is drawn anew; thus the surprise is quickly and often repeated, sometimes lasting for two or three hours, until the sea-otter, from oft-interrupted respiration becomes so filled with air or gases that he cannot sink, and is then an easy victim.

THE CLUBBING.—This is the gamey undertaking of the sea-otter hunter, and it only transpires in the winter season, and then during those unfrequent intervals which occur when tremendous gales of wind from the north, sweeping down over Saanach, have about blown themselves out. Then the natives, that is, the very oldest of them, set out from Saanach and Chernobours to scud down on the tail of the gale to those far-outlying rocks just protruding above surf-wash, where they creep up from the leeward to the Bobrooksie occasionally found there at such times. The sea-otter are lying with their heads pushed under and into the beds of kelp, to avoid the fierce pelting of the spray from the hands of a furious gale. But the noise of the tempest is greater than that made by the stealthy movement of the hunters, who, armed each with a short, heavy, wooden club, dispatch the animals one after another without alarming the whole body; and in this way, I am informed, two Aleuts, who were brothers, were known to have slain seventy-eight sea-otter, young and old, in less than one and a half hours. The result of this fur bonanza, so speedily worked, had they been provident in its investment, would have clothed and fed them for the rest of their natural lives; but, like our own coal-oil Johnny, they quickly squandered their wealth, and are poorer now than ever, or were so when I last heard from them.

NETTING.—The hunting by use of nets, which is a method adopted by and peculiar to the Atka and Attoo Aleuts, calls up the strange dissimilarity which exists now, as it has in all times past, between the practice of these Western Aleuts and that of those who, living in Oonalashka and to the eastward, never have used nets.

*According to Crantz, in his History of Greenland (1765), this method of securing the sea-otter was the style in which the Greenlanders captured hair-seals (*Phocidæ*) during the period of his observation there. I do not find that any modern writer speaks of such a chase in Greenland waters, or any other ancient authority who alludes to it.

These Attoo people, however, make little nets, from 16 to 18 feet long and from 6 to 10 feet wide, with a coarse diamond-shaped mesh, which in olden times was entirely made of sinews, but at the present writing is principally constructed of twine. They take these nets out to those kelp-beds, known by them to be favorite resorts of the otter, and spread them carelessly here and there over a floating mass of the "sea-cabbage". Then, on returning, after a few days' absence, they frequently find sea-otters entangled therein, having, as they say, died of excessive fright; for were they as self-possessed as the sea-lion is when entrapped thus, they would speedily tear and gnaw themselves free. Sometimes, the natives say, they have caught as many as six sea-otters at one time in one of these small nets, and frequently get three, if they get anything at all. They also watch for surf-holes or caves in the bluffs at tide wash, and when one is found to which a sea-otter habitually resorts they set this net by spreading it over the entrance, usually succeeding in capturing the animal. The salt water or the kelp seems to act as a disinfectant to the net, so that the smell of it does not alarm or repel the shy animal.

DANGERS OF SEA-OTTER HUNTING.—In conclusion it may be noted that there is no driving of these animals out upon the land; it cannot be done. They are very fierce and courageous, and when surprised by a man between themselves and the water, they will make for the sea straight, without any regard for the hunter, describing their progress by a succession of short leaps that carry them rapidly over the rocks, a little distance at a time.

There is probably no chase of terrestrial or marine animals so exhaustive and exposed as is the hunting of the sea-otter in Alaska to-day; for the only periods in which man can expect with reason to surprise and capture this valuable animal is immediately after or on the eve of tempests, when the pounding *of the surf, with a force like whirling fine shot, or briny spray in the wind*, literally drives the tired otter to the land; but the moment the howling of the gale subsides the kalan is rested sufficiently, and, in obedience to its intensely suspicious nature, hies himself to sea again.

Therefore, in the tempest, or as it just begins to wane, must the successful Aleut hunter ven*ture out. He must* be a man with hardy thews and sinews, so that he can sit, if the case require (and it frequently does), for forty-eight hours in his conical, shallow boat, and battle for life against the furious gale, in order that he may hold his own and not drift to certain death into the vast expanse of the great Pacific.

The greatest care must be taken by the sea-otter hunters at Saanach and Chernolonrs when they go down to these islands for their summer, and, more particularly, their winter campaigns. They cannot, during all the six weeks or two months of their residence there at one time, light a fire or boil a cup of tea unless the wind is blowing just so. They have lived thus, in the dead of a severe winter, eight weeks at a time without a moment's interruption by the lighting of a fire. They do not dare to smoke or use tobacco in any form, nor do they scatter or empty their food refuse on or near the beaches. It must be carried inland and buried.

Of all these details I am assured by one who is perhaps the first white eye-witness of this winter hunting, as he lived on the island through that severe hyemal season of 1872–'73; and, though he was moderately successful, he told me that all future gain, no matter how alluring it could be held up to him, would never tempt him to repeat the experience.