XIII.—NOTES ON THE HABITS AND METHODS OF CAPTURE OF VARIOUS SPECIES OF SEA BIRDS THAT OCCUR ON THE FISHING BANKS OFF THE EASTERN COAST OF NORTH AMERICA, AND WHICH ARE USED AS BAIT FOR CATCHING CODFISH BY NEW ENGLAND FISHERMEN.

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INTRODUCTORY NOTE.

For many years after the introduction of trawl-line fishing in New England birds were extensively used for bait to eke out the supply obtained from other sources, and even prior to the time when trawls came into use old fishermen say that they caught birds on the banks with which they baited their hand-lines. Several varieties of birds were obtained for bait, principal among which may be mentioned the hagdons (*Puffinus major* and *P. fuliginosus*); the jægers, of several species; fulmars, gulls, and petrels or Mother Carey chickens.

Birds were used much more extensively before 1875 than they have been since, as of late years it has generally been found more profitable to depend on other sources for a bait supply. They have never been used for bait in any great numbers, except by trawling schooners on the Grand Bank, and these vessels were said to be engaged in "shack-fishing."

The term "shack-fishing," it may be explained, owes its origin to the kind of material used as bait, the word "shack" being applied to refuse or offal. The vessels procuring fares in this manner were called "shack-fishermen." They usually resorted to the Banks in early spring, carrying a limited amount of salt clams, salt squid, or menhaden slivers, which were intended to be used in commencing the fishing season, and to eke out any deficiency which might occur in the bait supply. The fishing being well under way, the crews depended upon such bait as they could procure on the Banks, such as birds, small halibut, porpoises, and sometimes codfish; all of which, together with the contents of the stomachs of the cod, which often consisted largely of bank clams and occasionally young squid and capelin, were called "shack," or "shack bait."

A fisherman preparing a bird for shack-bait cuts off the feet, tail, and neck; then, making a cut across the breast, he strips off the skin and

throws it overboard. Having removed the skins and viscera (the latter makes an excellent bait) from as many birds as he has at hand, he pounds the bodies with the back of a heavy knife or stick, breaking the bones, or, as he would term it, "mummies them up." This beaten and bruised mass of flesh and bones is then cut up into small pieces of suitable sizes to be used as bait. At this point the fisherman is influenced by the number of birds he has on hand. Should the supply be bountiful, he divides the bodies into comparatively large sections, while, on the other hand, if the birds are scarce, he must exercise the strictest economy, and subdivides the material into correspondingly small pieces, large enough only to "point the hooks," while an inferior and less desirable bait may be used on the shanks.

On some parts of the Grand Bank cod are found in great abundance, and the clams taken from the "pokes" (stomachs) often furnish a considerable percentage of the requisite amount of bait for the trip. The roes of the cod, when partially developed, are also used as bait, since they make a fairly attractive lure, and if properly attached to the hooks cannot be easily pulled off by the fish. When this bait is used the "pea" is cut into strips in such a manner that they may be turned inside out; the hook is then passed through and through the membraneous covering in several places, a turn being made around the shank each time.

Shack-fishing differs from other styles of Bank fishing only in the method of obtaining bait supplies. A vessel engaged in shack-fishing remains on the Bank until she has secured her fare, and, as before stated, depends solely upon getting her bait on the ground instead of—as is the custom of other vessels—leaving the Bank and running into the harbors of Newfoundland and Nova Scotia to obtain a "baiting" of herring, capelin, or squid.

The method of shack-fishing has its advantages and disadvantages. One of the advantages, and a very important one, is that no time is lost in seeking bait, and the vessel is enabled to prosecute her fishing on the bank whenever favorable days occur. On the other hand it must be acknowledged that the kind of bait employed by the shack-fishermen is comparatively unattractive to the fish, and the supply oftentimes has of late years been inadequate; consequently, it has generally been found more profitable for our bankers to obtain supplies of fresh bait in the provincial ports. At the present shack-fishing is rarely undertaken. It may be worthy of mention, however, to state that fine fares of cod have been obtained by this method as late as 1874–'75, and, indeed, this mode of capture has, since then, sometimes been preferred by the most experienced fishermen, especially when cod have been extremely abundant on the Banks; for when a large school of fish is around a vessel a fisherman is very reluctant to heave in cable and fill away, even for a "fresh baiting."

As birds were considered as good or better than any other kind of

shack bait, and as they could often be taken in large numbers, it will readily be understood their presence on the fishing banks often was of material aid to the fishermen in securing their fares of cod.

In these notes the writer expects to do nothing more than to give, in an off-hand, and, perhaps, rather disconnected manner, the result of his study of the habits and methods of capture of these sea birds, which for many years were his almost daily companions; the chief object being, of course, to convey some idea of the importance of several species as a source of bait supply to our fishermen.

THE GREAT SHEARWATER, (*Puffinus major*).*

This species, the "hagdon," or "hag," of the fishermen is, perhaps, one of the most interesting which is to be found on the outer fishing-grounds; it is used for bait more than any other bird, and has many peculiarities essentially its own. It has a wide distribution in the western Atlantic, and I have myself observed it all the way from latitude 39° 50′ N., longitude 71° 25′ W., to north of the Grand Bank in latitude 47°, longitude 50°.† The place of its greatest abundance, however, is probably from near Le Have Bank to, and including, the Grand Bank, the latter locality seemingly being its favorite resort during the summer season. There it occurs in remarkable numbers for several months of the year; indeed, so abundant is the species that, in many cases, as will be shown further on, it has become of considerable importance as a source of bait supply for the cod-fishermen on that bank. It appears on the fishing ground usually in the latter part of May or about the 1st of June. In a daily journal kept by myself I find the following note, under date of May 26, 1879: "I saw a hag this morning, the first I have seen this spring."‡ This bird was probably a straggler from the large flocks, and very likely it reached the fishing-ground sooner than its companions. Three days later, however, on May 29, when in latitude 43° 35′ N., and longitude 59° 47′ W., I saw several large flocks of these birds, and shot one individual. The birds were at that time sitting on the water, and had apparently just reached the locality. Their stay on the Banks continues until about the middle or last of October (occasionally later), when they gather in flocks, sitting around on the water for a few days before taking their departure.

Occasionally, in midsummer, they seem to be scarce, but what the

* It is altogether possible, perhaps probable, that there may be other species of *Puffinus* which frequent the fishing banks, besides the two I have named in these notes. On several occasions I have seen birds of this genus which were much smaller than *P. major*, and which I then thought were the young of that species, but I now believe they were a smaller variety. My object, however, is not to define the species, but simply to give some idea of the habits of the birds.

† Mr. Ridgway tells me that *P. major* is found as far south as Cape Horn or vicinity.

‡ Our position at that time was latitude 43° 10′; longitude 62° 23′.

cause of this scarcity is I am unable to say. Under date of August 1, 1879, I find the following note: "Shot three hags, but they are very scarce." I am somewhat inclined to the opinion that they find abundance of squid at that season, and therefore do not come about the vessels so much as when hungry. When or where the hagdon breeds is unknown to me. My opinion is that it breeds in winter. I have opened many hundreds of these birds, but have never found their sexual organs in a condition that would indicate they were incubating.

It may be well, in this connection, to allude to the social habits of the hagdon as they have come under my observation. When the birds reach their destination in the spring, for a few days after their arrival, they do not seem to make any special effort for the purpose of securing food, but pass most of their time sitting in large numbers on the water, and at this period it is somewhat difficult to catch them on hook and line. Occasionally a flock will make a short flight and again settle down, but there appears to be a strong inclination, at this time, to huddle together and keep up the organization which has probably existed during their migration from distant regions. The same thing in regard to going in flocks is noticeable in the fall, when they collect for their autumnal migration from the fishing-banks. At such times they show the same disinclination to bite at hook and line that they exhibit when first arriving on the fishing-grounds. This apparent indifference to food at such times is all the more remarkable, since only a few days elapse after the flocks have reached the fishing-grounds in the spring before they break up; and in a little while after the arrival of the hagdon it may be seen skimming the surface of the water on a tireless wing, totally unmindful of the presence or absence of its companions, unless, indeed, their appearance may indicate where food is abundant; in such cases it loses no time, but rapidly wings its way to join them in the feast. Nor does it do this from any feeling of sociability, if we may judge from its actions, but simply to gratify its enormous appetite. In doing this it fights and struggles with all other birds, whether of its own kind or of other species, to gain possession of the finest morsels, uttering, meanwhile, extremely harsh and discordant notes. When feeding it displays a dash and pugnacity that is perfectly astonishing. The audacious boldness with which it will attack superior strength in the struggle for food, and the ferocity and reckless bravery it exhibits on such occasions cannot fail to command the attention of all who witness the performance. Nothing can exceed the activity of the hag or its intrepid recklessness, if I may so term it, when in pursuit of food, and, when very hungry, it seems to pay almost as little regard to the presence of man as to the proximity of other birds.

The tenacity of life exhibited by *Puffinus* is certainly surprising. It often happens that after its skull has been crushed between the teeth of its captors, a hagdon may lie seemingly dead for several minutes and then recover sufficiently to make desperate efforts to escape. In several

instances which I can recall, hags that were thought to be dead have escaped by "flopping" out over the slanting stern of the dory, unnoticed by the fishermen until it was too late to recover the wounded birds.

The tenacity of life and the remarkable pugnacity of these birds have, upon many occasions, provoked the fishermen to the cruel sport of tormenting them and prolonging their sufferings. Perhaps a dozen or more hags may be caught, and having been put in a hogshead-tub, or in a "gurry-pen," on the deck of the vessel, the fishermen bring about an internecine war by stirring them up with a stick. At such times the birds evidently imagine that their companions are avowed enemies, and, pitching into their nearest neighbors, a general fight and terrible commotion ensue, while the feathers fly in all directions, much to the amusement of the men. In a short time the birds which were taken from the water sleek and strong, are utterly worn out in their struggles with one another, and present a bedraggled, forsaken, and disreputable appearance. The fishermen also sometimes tie two hags by the legs, using a string about one foot in length, which enables the birds to swim, but keeps them in unpleasant contact, the consequence being that they fight until one or both succumb.

The hagdon is remarkably strong and swift in its flight. Often it may be seen skimming over the waves, passing from the top of one sea to another, scarcely moving a muscle; but by trimming its wings, if such an expression is allowable, first poised on one wing and then on the other, it is apparently propelled without an effort on its part, but simply by the action of the wind beneath. This method of flight, however, is frequently varied, for when necessary the hagdon can and does move its wings with great power and considerable rapidity. When in pursuit of food it plunges suddenly down into the water, striking on its breast with great violence, and in a manner quite different from that in which gulls alight. Its method of diving is also different from that of many other species. It never plunges head first into the water as do the gannet, kingfisher, and many other piscivorous birds; but it first alights upon the surface, as just noted, disappearing almost instantly. It is an active swimmer under water, and when in pursuit of food passes rapidly from one object to another, provided it cannot eat the first thing which attracts its attention. When the hagdon finds food agreeable to its taste, it immediately rises to the surface and hastily swallows the morsel, if it is not too large. This manner of eating is necessary as a matter of self-protection, for if the bird delays swallowing its food, it will soon have to dispute its right of possession with its companions.

It is a common occurrence for a number of these birds to chase a boat for half an hour or more at a time, diving like a flash, every few minutes, after the bubbles made by the oars, which these winged rangers seem to imagine some kind of food beneath the surface of the water. Nor will repeated failures discourage them in making these attempts. They will also persistently follow a dory from which a trawl is being

set, and diving in the wake of the boat, after the sinking gear, make desperate endeavors to tear the bait from the hooks. In these attempts they are often successful, much to the chagrin of the fishermen whose chances for catching fish are thus materially diminished by these daring robbers.*

The voracity and fearlessness which are thus so strikingly displayed by the hagdon offers the fishermen an opportunity to administer what they consider retributive justice, since the capture of these birds is thus made a comparatively easy task. Formerly, as has been stated, when shack-fishing was extensively carried on by the Grand Bank codfishermen, great numbers of *Puffinus* were caught for bait with hook and line. Before proceeding to describe the methods of capture I shall refer to the food of these birds. From my observations I am of the opinion that the hag subsists chiefly on squid, which, of course, it catches at or near the surface of the water. I have opened many hundreds of them, and have never, to my recollection, failed to find in their stomachs either portions of the squid, or, at least, squids' bills. It may be interesting also to mention the fact that in the fall of 1875, when the giant *Cephalopods*, or "big squid," were found on the eastern part of the Grand Bank between the parallels 44° and 45° north latitude, and the meridians of 49° 30′ and 50° 30′ west longitude, flocks of hagdons were invariably found feeding on the dead "devil-fish" which were floating on the water. In nearly all cases these "big squid" were found in a mutilated condition, usually with their tentacles eaten off almost to their heads, and the fishermen soon learned to detect their presence by the large flocks of birds collected about them. The small species of fish which frequent the waters of the eastern fishing-banks, such as the lant, capelin, etc., also furnish *Puffinus* with a portion of its food. But birds of this species, as well as most all others found at sea, are excessively fond of oily food, and especially the livers of the *Gadidæ*, cod, hake, etc., and this extreme fondness for codfish livers, which they swallow with great avidity, renders their capture possible by the fishermen with hook and line. "Hag-fishing," as it is called, can be carried on either from the side of a schooner or from dories, though usually better results are obtained by the men going out in the latter at some distance from the vessel. When it is desirable to obtain these birds for bait the morning is usually selected to effect their capture, since at that time they are generally more eager for food than later in the day, when they are frequently gorged with the offal thrown from the fishing vessels, or with food obtained from other sources. It is generally the case, therefore, that two men engaged in hauling a trawl in a dory, after having obtained a sufficient number of cod to supply them with the requisite amount of livers, stop

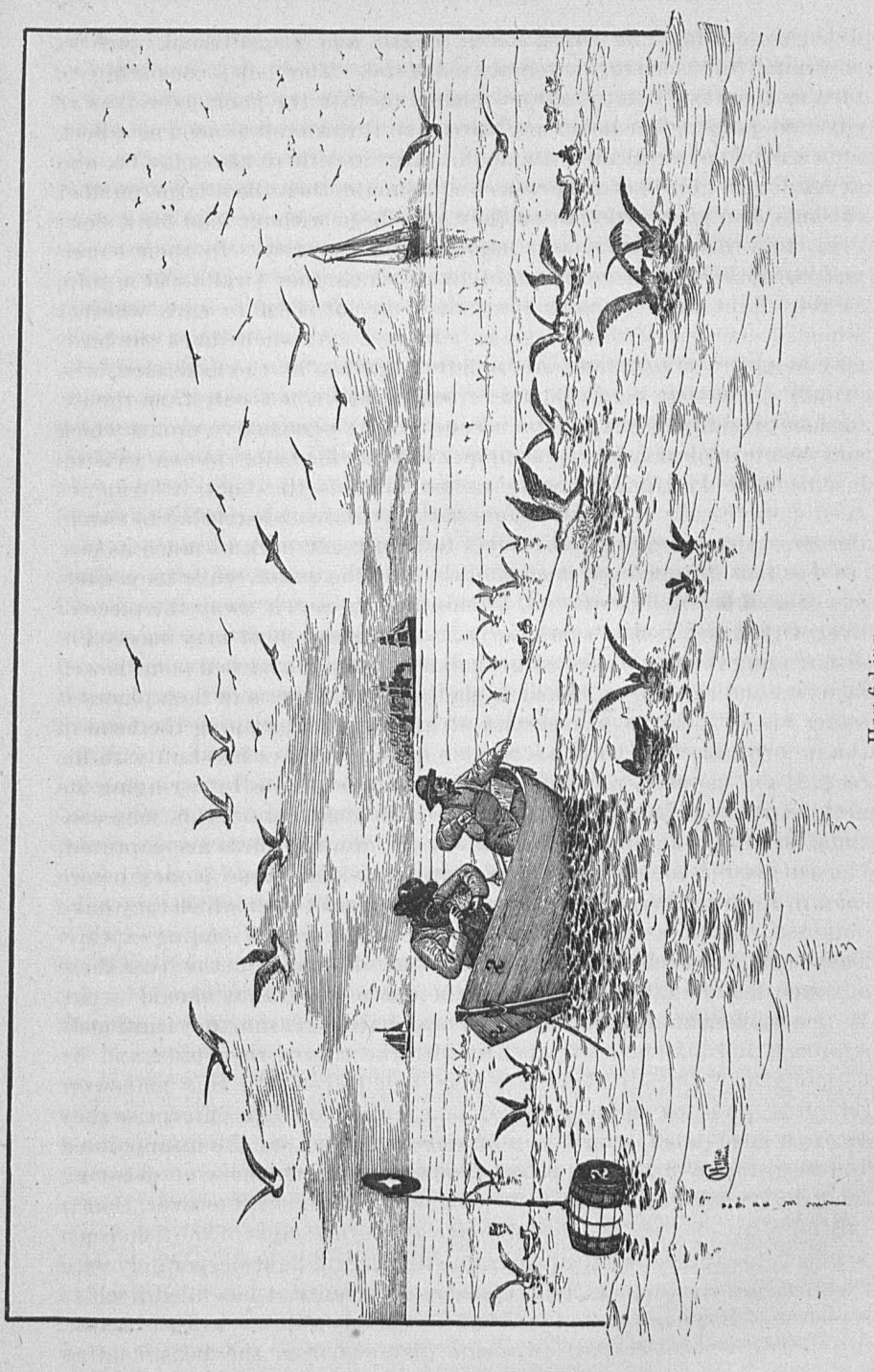
*My brother, Capt. D. E. Collins, tells me that on several occasions he distinctly recollects that hagdons were caught on trawn-lines belonging to his vessel, the hooks having fastened in the beak or throat of the greedy birds, which had swallowed the bait before they had torn it from the sinking gear.

hauling their gear and proceed to "toll" up the birds. In order to do this pieces of liver are thrown out, which immediately entice the ever-present petrels or Mother Carey chickens that gather in flocks around the floating morsels and dancing up and down upon the water, tear the swimming particles into pieces small enough for them to swallow. If the weather is clear the keen eye of the nearest hagdon quickly detects this gathering of small birds near the boat, and thither he wends his way to scatter the little Mother Carey chickens right and left by his audacious aggression, while he swallows, with indescribable eagerness, the pieces of floating liver, uttering, meanwhile, his harsh and disagreeable note. Not many minutes elapse before other birds—hagdons, jægers, and other species, perhaps—may be seen coming from all points of the compass, and in a short time a large flock collect about the boat. If the weather is thick the programme is slightly varied. The birds are then attracted by the fishermen imitating their cries, and also, perhaps, by their scenting the oily liver floating on the waves. I am assured by an excellent authority—Dr. Elliott Coues—that all the birds of this family are provided with very imperfect organs of smell; but, nevertheless, both the hag and the Mother Carey chicken exhibit some peculiarities which so strongly resemble those of a dog working up a scent that it may not be out of place to call attention to the subject here. On many occasions, during the prevalence of a dense fog, when not a bird of any kind had been seen for hours, I have thrown out, as an experiment, pieces of liver to ascertain if any birds could be attracted to the side of the vessel. As the particles of liver floated away, going slowly astern of the schooner, only a short time would pass before either a Mother Carey chicken or a hag, generally the former, could be seen coming up from the leeward out of the fog, flying backward and forward across the vessel's wake, seemingly working up the scent until the floating pieces of liver were reached. If the first bird to arrive should be a Mother Carey chicken, and the liver too large for it to attack alone, which was generally the case, the petrel would at once fly away, and in a few minutes three or four could be seen returning. This suggests a question as to whether the petrel went to seek assistance or not in order that he might share with his coadjutors the feast which he could not well obtain unassisted; but should the first one to appear be a hag he does not seek companionship, but with a greedy yell he pounces upon the pieces of liver and swallows them with the voracity characteristic of the species, and no sooner has he devoured one morsel than he is off on the wing seeking for more. However, it is generally the case that a flock of hagdons soon gather, whatever may be the density of the fog, unless birds are very rare on the Bank or, perhaps, rendered indifferent to food by a recent feast.

Having made this seemingly necessary digression to explain the methods of "tolling up" and gathering the flocks of birds about the dory, I shall now proceed to describe the *modus operandi* of their capture.

The two men in a dory, one aft and the other forward, are each pro-

vided with a line 5 or 6 fathoms in length, and a small hook, such as is ordinarily used for catching mackerel. The bait, consisting of pieces of codfish liver, is large enough to float the hook as well as to cover its point. The hooks are baited and thrown out as soon as a flock of hagdons have collected about the boat, and there also may be, and generally are, birds of other species. Should there be a large number of hags, and more especially if they have been without food for a short time, they display an almost indescribable voracity. In their eagerness to obtain the large pieces of liver, which they swallow at a gulp, as they fight among themselves, they do not seem to care whether a hook is concealed within the bait or not. At such times the birds may be easily caught, and are rapidly pulled in by the fishermen, who usually derive much gratification from the sport, not only from the excitement it affords, but also on account of the perspective profits which may result in obtaining a good supply of birds for bait. When a victim has been hooked, and is being pulled towards the boat, it struggles most energetically to make its escape by vainly endeavoring to rise in the air, or by spreading out its feet to hold itself back as much as possible as it is dragged unceremoniously over the water, while its vociferous companions follow after it, attempting to snatch away the piece of liver with which it has been decoyed. At times a bird may succeed in disengaging the hook from its beak, but usually the barbed point is well fastened and the hag is landed in the boat. A fisherman then places it under his left arm to prevent its struggles, and grasping the head of the unfortunate bird with his right hand he crushes its skull with his teeth. Or he may try to deprive his victim of life by wringing its neck, striking it on the head with a "gob stick," etc. This may continue until one hundred or perhaps two hundred birds are captured, but usually not so many. A comparatively short time passes before some of the birds become gorged with the pieces of liver which they have obtained, and then they exhibit the greatest cunning in eluding capture. They seem to be fully conscious of the fact that within the liver there is concealed something which, for their own good, they should avoid. With a wonderful instinct that almost approaches reason, they cautiously approach and take hold of the bait with the tips of their bills, and by flapping their wings, endeavor to tear it to pieces. In this maneuver the birds are often successful, and as a reward for their enterprise they secure a good lunch, which they hasten to devour, as the disappointed and disgruntled fisherman rebaits his hook with the hope of decoying some less wary individuals. It frequently happens, however, that a skillful "bait stealer" renders abortive all the attempts of the fishermen to effect its capture, while at the same time it will fight desperately with its intruding companions, to keep them away until it has filled itself to repletion. Having satiated itself until scarcely able to clear the water, it quietly drifts to leeward at a safe distance from the boat, floating upon the waves to await the digestion of its food, and apparently to



Hag fishing.

take in the situation. So greedy, however, are many of these birds that oftentimes they seem to leave, with great reluctance, the place where food is plentiful, even though they may be gorged to such an extent that they can eat no more. I have often, on such occasions, seen them lingering near the boats, looking upon a tempting piece of liver apparently with an expression indicative of regret that they could not find room for it. Frequently these greedy and garrulous birds also quarrel with their companions and attempt to drive them away from the food which they desire, but cannot accommodate. Of course their endeavors are futile, for while they are opposing one, others rush in and devour the liver.

When hags are abundant recruits are constantly arriving, and congregate in great numbers wherever food can be obtained. Eager to secure a share in the feast, the newcomers rush ravenously forward and swallow the pieces of liver, and are quickly pulled in by the fishermen, who, after killing them in the manner described, detach them from the hooks, and throw them in the bottom of the boat.

After awhile, however, the whole flock usually evinces a shyness which renders the sport unprofitable, and the men then employ themselves in hauling their trawls, or they go aboard the vessel.* If a sufficient quantity has been taken to more than supply the wants of the day, the birds are hung up around the booms and on the stern of the vessel. A few years ago it was not an unusual sight to see from two hundred to five hundred birds, more or less, of this species, suspended from a Grand-Banker. In this manner they may be kept for several days without becoming worthless for baiting purposes, and, if eviscerated, they will keep fresh a much longer time. Indeed, I am told that in the fall it has been a common custom for the Marblehead bankers to save quite a number of these birds and bring them home in a fresh condition from the Banks, the hagdons being simply eviscerated and hung up in the hold of the vessel.

These birds are eaten to some extent by the fishermen of the present day. Forty or fifty years ago, and even earlier, this species formed an important item in the bill of fare of a Grand Bank codfisherman. Al-

*It may be stated here that the capture of hagdons may occur at any time of the day and under different circumstances from those above mentioned; but the description given represents the most common method adopted. The birds are also often caught towards evening after the trawls have been set for the night, or from a dory paid astern of the schooner. In the former case, the men, after setting their gear, make their boat fast to the outer buoy of the trawl, and having enticed a flock of birds around their boat, they proceed to catch as many of the hagdons as is possible in the manner described. Ordinarily these birds are not caught to any great extent from vessels, except when the roughness of the weather renders it undesirable to go out in the dories, or when an unusually large and hungry flock has been collected alongside, attracted by the offal thrown out while dressing fish. At such times the men usually stand on both sides of the quarter-deck and catch the birds in the manner that has already been mentioned, except that wooden floats are occasionally attached to the lines a foot or two above the hook.

though they have rather a "fishy" flavor, which is not especially agreeable to a delicate palate, they are nevertheless, when properly cooked, an agreeable change for the table of a fisherman who has been absent from home several months, and, consequently, has not had an opportunity of obtaining fresh messes other than fish. At present, when our fishermen are enabled to get much better food than any other class of sea-faring men, hagdon "pot-pies" or "stews," are not so tempting to them as they were to the codfishermen of an earlier date. I am told by persons who have knowledge of the fact, that some of the old Marblehead fishermen who had been in the habit of eating the hagdon for many years, acquired such a taste for the peculiar flavor of the bird, that they actually preferred it to the domestic fowl; and when no longer able to engage in the bank-fisheries, would look to the younger men for their supplies of hags, which were brought home in the manner just referred to, on the Grand Bank vessels.

THE BLACK HAGDON, OR SOOTY SHEARWATER. (*Puffinus fuliginosus*).

The sooty shearwater, or the "black hagdon" of the fishermen, is invariably found with *Puffinus major*, and, doubtless, occurs over very nearly the same area. It is less plentiful on the fishing-banks, however, and, as a rough estimate, I should say that it does not exceed in abundance more than 1 per cent. of the numbers of the great shearwater. Its habits are very similar to those which I have mentioned as being peculiar to the common hagdon, and with the exception that possibly it is a little less noisy, the description of the habits of one species may be applied to the other. As the two species mingle freely together, the black hagdon is often captured with its less sooty companions, and is, of course, also used for bait by the "shack" fishermen.

THE FULMAR. (*Fulmarus glacialis*).

This species, known by a variety of names to the New England fishermen, such as "noddy," "marbleheader," and "oil bird"—called a "stinker" on the west coast—is found on the fishing banks north of Cape Cod in winter, and also occurs in greater or less abundance from Sable Island northwardly, during the summer months, though it is most numerous in this region during cold weather. The following notes from my journal, which were made while near the northwest part of the Grand Bank, may prove of interest in this connection:

February 7, 1879.—*On western edge of the Grand Bank*, latitude 44° 25′ N., longitude 52° 58′ W., "I saw several noddies this morning, but for some reason they would not come alongside of the vessel. I have seen one or more every day (since January 30), but have had no chance to get any."

February 8, 1879.—Same place as above. "Saw some noddies this morning and shot one, but did not get him."

March 11, 1879, in latitude 45° 9′, longitude 54° 58′, I shot four noddies, and the following entry is made in my journal under date of March 12: "There have been great numbers of noddies to-day. I shot two; but when the vessel swung into the trough of the sea I could not shoot any more."

"*March* 14. Have seen large numbers of noddies this trip, and almost every day since we have been here some of the burgomaster gulls—a large white species. I shot several of the noddies to-day, but the gulls are shy, and it is difficult to approach them near enough to obtain a shot."

I will add that the weather during the above-mentioned time was extremely cold. On April 13 of the same year I made the following note: "I have not seen a noddy this trip." We had then been at sea about one week. On April 18, 1879, we were on Green Bank, when the following entry was made: "I saw a noddy to-day for the first time this trip."

June 5, 1879. Eastern part of Banquereau. "I have noticed a noddy now and then for the last three days, but have not seen any before for some time."

Under date of July 29, 1879, the following entry is made: "I have seen no noddies this trip."*

The plumage of this species varies in color; that of some of the birds is of a uniform smoky gray, and of others white, with black wings, and some of the other feathers bluish.

The fulmars are probably more abundant on the Grand Bank than on any other of the fishing-grounds commonly resorted to by American vessels, with the exception, perhaps, of the halibut grounds in Davis Straits, or the Flemish Cap to the eastward of Grand Bank, which are not visited by many fishing schooners.

The marbleheader is quite as greedy as the hagdon, and quite as bold when in pursuit of food; but unlike the latter, which is always quarrelsome and noisy, the fulmar confines itself to a sort of chuckling sound, somewhat resembling a low grunt. It will swallow a piece of cod liver with even as great voracity as the hag, but it rarely, if ever, seems to exercise the cunning or caution of the latter in trying to avoid the hook, and, as a consequence, it is more easily captured. It is caught in the same manner as the hag, but owing to its comparatively small numbers on the fishing-grounds, the fishermen do not depend upon it so much as a source of bait supply as upon *Puffinus major*, since one would be likely to catch twenty, or perhaps many more, of the latter, to one noddy. When caught on a line and hauled into a boat it frequently emits quantities of oily matter from its nostrils, and often disgorges its food. This peculiarity of the species which is not common

* It may be offered as an explanation here that I was collecting these birds for scientific purposes, and, therefore, preferred to shoot them instead of catching them on a line.

to the hagdon, has been remarked by others. The hagdon will occasionally throw up the contents of its stomach when caught, but not as a rule, so far as I have been able to observe.

The fulmar subsists chiefly on small fishes, and, doubtless, participates with the hagdon in the pursuit of the squid; but I have no recollection of noticing in its stomach, as I have in that of the hag, the presence of pieces of squid or the beaks of that animal. I have, however, frequently observed that the contents of the stomachs of many of this species consisted almost entirely of small fish. Like *Puffinus*, it is very fond of oily food, which it swallows with astonishing greediness. It devours large quantities of codfish liver in a ravenous manner that would astound one unacquainted with its habits, and it certainly would tax their credulity to believe statements that might be made bearing on this subject.

The fulmar is essentially an Arctic bird and occurs in great abundance in the far North, where it is met with by whalers and halibut fishermen in summer, at which season, according to the accounts given by Arctic explorers, it goes there for the purpose of incubation.

"The fulmar is the constant companion of the whale-fisher," says Scoresby, in his Arctic Regions: "It is highly amusing to observe the voracity with which they seize the pieces of fat that fall in their way; the size and quantity of the pieces they take at a meal; the curious chuckling noise which, in their anxiety for dispatch, they always make, and the jealousy with which they view, and the boldness with which they attack any of this species that are engaged in devouring the finest morsels. The fulmar never dives but when incited to it by the appearance of a morsel of fat under water." These peculiarities of the species agree exactly with my own observations.

The fulmar has frequently a ragged appearance; the wings and tail-feathers being fagged out and the bird is often soiled with grease. They have a rank, pungent smell, which is exceedingly disagreeable. Notwithstanding its boldness when in pursuit of food, and its apparent indifference to the presence of man, frequently coming within a few feet of the side of a boat or vessel, rivaling in this respect the most daring feats of the hagdon, it is, nevertheless, entirely different from the latter so far as its pugnacity is concerned. Although it may struggle to get the food which another bird is trying to swallow, it does not exhibit such a fierce disposition as the hag, and when caught rarely attempts to bite. This is all the more strange since this bird has a sharp and very powerful hooked beak. Its flight is similar to that of *Puffinus*, and its manner of alighting on the water when in pursuit of food is also much the same. The noddy, however, as has been mentioned, rarely dives for food, and, so far as I have observed, goes but a short distance beneath the water, evincing, in this respect, far less activity and enterprise than the hagdon. It is never eaten by the fishermen; its disagreeable, repulsive odor rendering it undesirable as food.

It may be added here that Capt. Henry O. Smith, of Salem, Mass., tells me that the fulmar frequently occurs in considerable abundance in winter in Fortune Bay, Newfoundland, and he also says that on one occasion he killed one of these birds in that region, which had a half-swallowed herring in its beak, the fish being too large for the noddy to get down.

THE JÆGERS (*Stercorariidæ.*)

THE GREAT SKUA GULL (*Megalestris skua*).

This is known to the fishermen as the sea-hen, and is, perhaps, one of the most interesting species that occurs on the fishing-banks, owing to its comparative scarcity in natural history collections. It is by no means abundant on any of the fishing-grounds, but is, nevertheless, to be met with occasionally all the way from George's to the Grand Banks, at least, and, doubtless, has a much wider distribution. I have observed it from Nantucket Shoals to the eastern side of the Grand Banks. It is difficult to say when and where it occurs in the greatest abundance; but, so far as I am able to judge, I should say that it is most plentiful on the Grand Banks in July, August, and September. In the summer and autumn of 1874 I shot several specimens of this species which were used for bait, and I have also obtained it for a similar purpose on other occasions though it could rarely be taken by hook and line. I remember that it was more plentiful in 1874 than I have ever noticed it at any other time.

In this connection an incident may be mentioned which occurred that year, that shows in a remarkable manner the tenacity of life which this bird sometimes exhibits. I was out a short distance from the vessel in a dory for the purpose of shooting birds for bait. We were then engaged in shack-fishing, and it was necessary to obtain as much material as possible with which to bait our hooks. Among other birds flying around were several skua gulls, which, on account of their large size were more desirable than the smaller species. Having enticed one of them within gunshot, I fired at it, and knowing that I had taken good aim, I was very much astonished to see it fly away apparently uninjured. I watched it, however, and soon noticed that it did not move its wings, but seemed to have them fixed or rigid, and after going about half or three-quarters of a mile it fell into the water. I went in pursuit of it and without any trouble found it, lifeless on the surface. The most singular part of my narrative is that when the bird was cut up for bait by one of the crew, a single shot was found in the center of its heart.

These birds usually appear singly, in pairs, or at times three of them may be seen together, and it is very rarely that half a dozen or more are seen at the same time. They are very shy, and seem to avoid a vessel, but when exceedingly hungry they show less reluctance in ap-

proaching a boat. It is a rare occurrence to catch them with hook and line, owing to their timidity in approaching a vessel or boat, as well as to their precaution in swallowing the liver used as a bait; hence few are caught in this manner, and the bait is taken by some other less cautious and more active birds. It is generally not difficult, however, to attract them within gunshot of a boat, and during a gale they do not hesitate to seek food near vessels lying at anchor. Their flight, like that of other large gulls, is heavy and moderate; but I have seen them make swift dashes of flight when chasing smaller birds which had secured pieces of liver.

The following extracts from my journal may give an idea of the abundance of these birds as well as the seasons at which they occur on many of the fishing-grounds. It is my opinion, however, as previously stated, that they are more common on the Grand Banks than on any other fishing-grounds where I have noticed their presence, but since I began to keep notes of birds I have not visited the Grand Banks in the months when the skua is most likely to be seen there. The size of this species and the peculiar markings of its plumage renders it easy enough to distinguish it from any other bird found on the fishing-grounds; none could be mistaken for it unless it might be some of the jægers, and such a mistake could only be made by one who took little notice of the flight or size of the birds which came under his observation.

November 27, 1878. Latitude 42° 49′ N., longitude 62° 55′ W. Two skua gulls—sea-hens—came near the vessel. My gun-caps are damp and useless, therefore I could not get these birds, as they are shy and will not bite at a hook unless extremely hungry.

February 3, 1879. Latitude 44° 25′ N., longitude 52° 58′ W. Western part of Grand Banks—during a northwest gale saw a sea-hen which came near the vessel, but the wind blew too heavy to catch it on a line, and it was of no use to shoot it as it was impossible to pick it up.

June 2, 1879. Latitude 44° 36′ N., longitude 57° 12′ W. Saw a sea-hen (great skua) fly across our vessel's stern but it did not approach close enough for me to shoot it.

July 5, 1879. Latitude 44° 08′ N., longitude 59° 10′ W. Had a shot at a sea-hen which came near the vessel, but the sea was so rough from a recent gale that my aim was destroyed by the schooner rolling, therefore I failed to kill the bird.

October 11, 1883. While on a cruise in the U. S. Fish Commission steamship Albatross, and when the ship was just abreast of the Fishing Rip, Nantucket Shoals, steaming northwardly, a pair of great skuas passed across the vessel's bow, about 200 yards off, flying southwestwardly.

GULL-CHASERS (Genus *Stercorarius*).

There are several varieties of jægers, of the genus *Stercorarius* that frequent the fishing-banks, and which are known to the fishermen by

the names of "Marlingspikes," "Whiptails," etc.* The former term being generally applied to the larger species, and the latter name to those that are smaller, both appellations having a special reference to the two long central tail feathers which is a distinguishing feature of birds of these species. They usually are most abundant on the outer banks in spring and fall, are rarely seen in midwinter, and are comparatively scarce in midsummer. It is probable that in June and July the adult birds go in to the land to incubate. I do not recollect of having seen a single individual of the smaller species in winter, and these are always much less abundant than the larger varieties. The following extracts from notes in my journal on the appearance and abundance of these birds on the fishing-banks may perhaps be of interest. Before quoting these extracts, however, I will say that on the 29th of August, 1878, I sailed from Gloucester on a fresh halibut trip to Banquereau. On this occasion Mr. Raymond L. Newcomb† went with me, having been sent by Professor Baird to collect birds for the Smithsonian Institution.

When a few miles to the eastward of Thatcher's Island (Cape Ann) on the day of sailing, we saw several jægers of the more common varieties, most of them not having the long tail-feathers which are, generally speaking, the characteristic feature of these birds.

On September 3, some 20 miles eastward of Sable Island, Mr. Newcomb shot four jægers, besides birds of other species. September 5, we saw a number of birds belonging to the jæger family flying near the vessel, too far off, however, to shoot; but the following day a marlingspike was killed and added to the collection. On the 8th jægers were quite plenty, and three of the common varieties and a black one were killed. Two more marlingspikes and a whiptail were shot on the 9th, and an Arctic jæger was seen on the 10th, but kept too far off to be shot. A black jæger was killed on the 12th, which was the last of these birds obtained on the trip, as on that date we sailed for home. When a few miles west of Cape Ann, September 17, we saw a jæger engaged in a fight with two herring gulls.

The foregoing notes, together with the extracts that follow, cover about eleven months' time, nearly all of which I spent at sea on the fishing-banks, or in making passages to and from them. The presence of the

*The name of "Marlingspike" is generally applied to the larger species, such as the Pomarine Jæger (*S. pomatorhinus*) that was seen by Audubon at Labrador, and which is, perhaps, the most common species on the banks, and to Richardson's jæger (*S. parasiticus*), which, so far as my observations extends, is not very abundant on the northeastern banks, but is more commonly found in the Gulf of Maine. The Arctic Jæger (*S. buffoni*), which is much smaller than the other two species mentioned above, is called a "whiptail," because of the great length and flexibility of its two central tail feathers. This is said to occur in greater abundance further north than it does on the Grand Banks and adjacent fishing-grounds, where it is comparatively scarce and always timid.

†The gentleman who afterwards went as naturalist on the ill-fated Jeannette, and who fortunately survived the hardships of the journey across the ice and up the Lena.

different kinds of sea birds was a matter of special interest to me, and their appearance or absence was carefully noted, therefore it is probable that a general idea may be formed, from a study of these notes, of the seasons when jægers are most abundant on the outer banks.

October 1, 1878.—Latitute 43° 54′ N., longitude 58° 32′ W., "I shot a hag and a marlingspike."

October 3, 1878.—"I skinned a marlingspike this morning, a hag and a gull. Later in the day I shot three gulls and two jægers."

October 4, 1878.—"Shot a black marlingspike to-day, and skinned one of the more common varieties."*

November 13, 1878.—On Le Have Ridges, latitude 42° 49′ N., longitude 62° 55′ W. "Skinned four birds—three gulls and one jæger."

April 13, 1879.—East end of Banquereau, latitude 44° 39′ N., longitude 57° 15′ W. "I saw a jæger or gull-chaser to-day, the first I have seen since last fall."

April 29, 1879.—Latitude 44° 28′ N., longitude 57° 12′ W. "Shot three jægers and one gull to-day. There has been quite a number of jægers around for the past few days."

May 1, 1879.—Same position as above. "Shot two whiptails and three marlingspikes this morning. I shot two jægers in the afternoon; saw several Buffon's jægers but did not get any."

May 29, 1879.—South of Sable Island; latitude 43° 36′ N., longitude 59° 47′ W. "I shot a hag at noon, and another later in the day; also, a whiptail, marlingspike, and mackerel gull-[tern.]"

June 2, 1879.—Latitude 44° 36′, longitude 57° 12′ W. "Shot and skinned an Arctic jæger to-day."

July 29, 1879.—Latitude 44° 14′ N., longitude 58° 03′ W. "I have seen no noddies this trip, and jægers only twice.†

The time when jægers are most numerous on the fishing-banks, as may be seen by the foregoing notes, is in the spring, late summer, and fall. They never approach the numbers of the hagdon; sometimes, perhaps, a hundred or more may be seen flying around a vessel when fish offal is being thrown out, but twenty-five or fifty birds of this genus are about as many as are generally seen at one time.

Whenever they are near they quickly detect the presence of food by any accumulation of other birds, such as petrels or gulls. The gathering of a flock of petrels, or the first scream of a kittiwake, struggling for the possession of a piece of offal thrown over from a vessel, or pouncing on a codfish liver cast out from a boat, brings the fierce jæger to the spot, sweeping down with tremendous speed and indescribable rapacity to rob the feebler birds of what they have obtained, and so violent and persistent are its attacks that it frequently compels the gulls to disgorge the contents of their stomachs in order that they may escape the persecutions of this pirate of the air. So fearful are the kitti-

* The position was the same for October 3d and 4th as that given for the 1st.

† We sailed from Gloucester, Mass, June 19.

wakes of the jæger that invariably, so far as my observation extends, a flock of gulls that are sitting on the water will start up on a wing the instant that they are approached by either of the larger species.

It may be said, however, that the jæger rarely attacks the larger species of gulls, though I have seen the common gull—*L. zonorynchus*—fiercely chased by a jæger when the gull was flying away with food in its beak. However predaceous the marlingspike may be, so far as the gull is concerned, it never presumes to intimidate the hagdon; and there is little doubt but that the latter would become the aggressor if it found the former in possession of any desirable tid-bit.

Though the flight of the jæger is rather deliberate, almost heavy, under ordinary circumstances, it is, nevertheless, exceedingly swift when occasion calls for a display of its powers. As has been intimated it is very pugnacious, and its rapacity knows no bounds, but it is far less daring than the hagdon, neither is it so noisy as the latter.

Jægers have been used to a greater or less extent for bait by the "shack fishermen," generally being caught in the same manner as the hagdons are, with which they are usually taken, but, of course, in more limited numbers, as a rule. Sometimes they will bite quite freely at a hook covered with liver, and on several occasions I have seen a considerable number, perhaps twenty or more, caught from a vessel's side or from a boat. As a rule, however, they are too wary to be taken in any considerable numbers in this way, since they prefer to rob other and more daring birds, especially the gulls. During the summer months, when hagdons are almost the only birds (of course, always excepting Carey chickens) on the bank they have less chance to commit their depredations; therefore they are generally compelled to take the same risk that *puffinus* does or else go hungry. It is at this season that they are most frequently caught. In biting at a hook, unless the immediate presence of other birds influences its actions, the jæger generally exhibits considerable acuteness and dexterity in stripping the liver from the hook, and in this respect it is second only to the hagdon. It will take the liver in its beak and, rising in the air, will try to fly away to a distance with it before attempting to swallow it. If it is pulled away by a dexterous jerk on the line it will return and try it over again, but it is now doubly cautious, and the chances are it will get what it seeks and escape capture. But when birds are plenty and all are ravenous for food the marlingspike, in its struggles to be first, forgets its caution, and consequently becomes a victim to its greed. When hooked it almost always rises and tries to escape by flying; it rarely, if ever, splashes along like the hagdon with its feet stuck out, striking against the water in a desperate effort to hold back. It is killed, when caught on a hook, in the same way as the hagdon, but, unlike the latter, it generally stays killed, though it is by no means lacking in tenacity of life. When particularly difficult to catch on a hook it is often shot for bait. As a general thing one or two discharges of a musket causes these birds to be

shy about approaching a boat or vessel for some time afterward, and it may be anywhere from a half hour to more than an hour before one can again be enticed within gunshot. This being the case it will readily be understood that only a limited number can be obtained in this way, and it may as well be said that whenever they are shot the sport and excitement incident to the shooting is as much of an inducement for killing them as the procurement of the bodies for bait, though on some occasions I have myself found the supply of bait so obtained of considerable importance.

I have never, to my recollection, known of fishermen eating marlingspikes, but I know of no reason why they should not be as palatable as gulls or hagdons, which are frequently cooked and eaten.

GULLS (*Laridæ*).

The larger species of gulls, such, for instance, as the great black-backed gull (*Larus marinus*); the herring gull (*L. argentatus*); the burgomaster, (*L. glaucus*), Sabine's gull or the forked-tail gull (*L. Sabini*), and some other varieties which frequent the fishing-banks in greater or less abundance—the ring bill (*L. zonorynchus*) being the most numerous—have rarely been used to any extent for bait. The extreme shyness of the larger species; the fact that they, like the kittiwake, are absent from the fishing-grounds in summer (going and returning about the same time as the latter), and their comparative scarcity, even during the colder portion of the year, renders it difficult to effect their capture except by shooting them, and as one discharge of a gun will generally frighten them so badly that they will not come near again for several hours, if for the day, it seldom happens that more than one or two individuals can be got in this way, an insignificant number when several thousand hooks have to be baited. I have never seen a burgomaster or *L. marinus* caught on a hook. On several occasions I have seen the ring-bill captured in this way, but rarely more than one or two at a time. However hungry these large birds are (and they are generally very poor in flesh and in a half-famished condition), their extreme timidity generally prevents them from approaching even within gunshot of a vessel. But they will chase a kittiwake which is flying away with food with all the fierceness and persistence of a jæger, and their greater size and swiftness enables them to rob the smaller bird, though when there are several of the large gulls in pursuit of the same object—as is often the case—the result is generally a lively scrimmage in the air, which is a decidedly interesting scene to witness.

The larger gulls subsist chiefly on the small fish which they can pick up at the surface of the sea, but as they do not dive (so far, at least, as I have been able to observe) their ability to obtain food is more limited than that of the hagdon. I have rarely found any food in the stomachs of the large gulls that I have shot or caught on a hook, except, perhaps,

it might be the case that they had just swallowed some offal that had been thrown out from the vessel.

It sometimes happens that the common gull (*L. zonorynchus*) gathers in considerable numbers alongside of a vessel when fish are being dressed, and they are very active in securing their share of the offal thrown out; but, as previously stated, they depend more on watching and robbing the kittiwake than on venturing near enough the vessel to snatch the coveted morsels as they fall in the water. When they do attempt the latter feat it is interesting to note how skillfully it is performed. Its timidity prevents the ring bill from lighting to seize the food near the vessel; therefore, the instant his keen eye detects a piece of fish offal falling to the water, down he comes, swooping by with the speed of the wind, and so accurate is his flight that he rarely fails to snatch from the surface the object that he aimed at, and which he carries off in his beak to a safer distance where he can swallow it unmolested by the fear of man.

The large gulls are sometimes, though not often, eaten by the fishermen; the smaller, tenderer, and more easily caught kittiwakes are preferred. It may be of interest to mention in this connection that the coast fishermen of Newfoundland capture the young of the sea-gulls (generally of the larger species) while they are yet nestlings, and carefully rear them until they are full grown, feeding them chiefly on fish. A single family may have a dozen or twenty of these young birds. I have frequently seen ten or a dozen young gulls in a single pen at Belloram, Fortune Bay, and there were a number of such pens in the little village. In many places on the Newfoundland coast these birds, I have been told, occupy the same place that with us is filled by the domestic fowls. Instead of the conventional turkey for the holidays the coast fisherman is satisfied with the young and fat gulls which he has reared. And the family is considered fortunate which has among its members one or two enterprising boys who succeed in capturing several broods of young gulls on "off days," when they are not engaged in fishing.

THE BURGOMASTER GULL. (*Larus glaucus*).

This large and beautiful species occurs on the Grand Banks in the winter season, especially when the weather is unusually severe, or when there is an abundance of drift-ice on or near the banks. In the winter of 1879 I noticed them on several occasions while anchored on the northwest part of the Grand Banks, and on Green Bank, but, so far as my experience extends, they are never abundant. Two or three times we saw as many as ten or a dozen of them flying about the vessel, but they were so extremely shy that it was exceedingly difficult to entice them within gunshot. In my journal, under date of March 14, 1879, I made the following entry: "Almost every day since we have been here I have seen some of the burgomaster gulls." On the same cruise I succeeded in getting a specimen, the shot breaking one of its wings. I brought this bird

home in good condition on ice, and gave it to Mr. Raymond L. Newcomb, of Salem, Mass. The weather at the time I saw this species on the Grand Banks was unusually cold. So far as I had an opportunity of observing, these birds fly in pairs, and thus mated they will apparently keep together with much constancy, but they evidently have no disposition to go in flocks. Under date of March 13, 1879, is the following note in my journal: "I saw two beautiful great burgomaster gulls this forenoon; they were flying side by side to windward." Again, on March 15, I saw some splendid opportunities to shoot several burgomaster gulls, which came unusually near the vessel, but the weather was too rough to get them even if I succeeded in killing them, therefore I did not try. Its flight resembles that of the herring gull (*Larus argentatus*), though it is perhaps less swift than the latter.

Owing to the fact that the burgomaster is rarely or never seen in summer on the Grand Banks, and is so extremely timid about approaching man, it is not used for bait, since, for the reasons mentioned, it cannot be captured.

THE KITTIWAKE GULL (*Larus tridactylus*).

Of all the birds which visit the fishing-banks the kittiwake gull ("winter gull," "pinyole," etc., of the fishermen) is beyond question the most abundant, with the exception, perhaps, of the petrels or Mother Carey chickens. These gulls have a very wide distribution along the Atlantic coast. I have seen them along the coast of New Jersey, and thence to the eastern coast of Newfoundland, and while at sea, in winter, I have met with them all the way from Cape Cod to the Grand Banks. The species occurs in great abundance on all the outer fishing-banks in winter, and at the same time is also numerous about the harbors along the coast. It is apparently gregarious, but, though it is usually met with in large flocks, as has just been stated, yet sometimes one, two, or three of these birds may follow a vessel, which is making a passage in the deep water between the fishing-banks, for several days, eagerly watching for any offal that may be thrown overboard.

Though less daring and pugnacious than the hagdon, it is perhaps even more noisy when food is obtainable. It is a constant companion of fishing-schooners when anchored on the banks, and, especially when fish are being dressed, it comes in countless numbers around the vessel ready to pounce upon the offal. At such times all of them join in a general shout whenever any of their companions succeed in getting a morsel of food, and their screams are almost deafening. Should one of them get hold of a piece of codfish liver which it cannot swallow, it immediately attempts to fly away with it, but it is pursued by hundreds of its screaming companions, who make every endeavor to steal the half-swallowed piece of food. This attempt frequently proves successful; but it does not follow that the thief profits by its enterprise, for it, in turn, is subject to the same annoyance, and perhaps may lose the food

which it has so dexterously stolen. On the other hand, three or four birds may succeed in getting hold of the liver which is half swallowed by the first; but they usually content themselves with having merely obtained a taste of the precious tidbit which may be finally torn into pieces and swallowed by a half dozen of their more fortunate companions. The voracity with which the gluttonous kittiwake swallows the bait usually insures its capture with hook and line.

This species does not, however, leave its breeding-ground along the coast nor appear upon the fishing-banks until late in autumn, and therefore the "shack-fishermen" cannot depend upon it for bait, as they do on the hagdon, for, by this time, they have generally nearly completed their fares, and in some cases have returned to their home port.

Some years ago, when the codfishermen used to remain on the Grand Banks later in the season than they do now, sometimes staying as late as November, or possibly longer, large quantities of kittiwake gulls were used for bait.

Some of the fishermen relish the bird, which, when properly cooked, makes a not unsavory dish at sea. Such a dish cannot, of course, be compared to spring chicken; but a "pot-pie" made of kittiwake gulls would probably not be regarded with indifference even by the most fastidious, and as served in some instances which have passed under my own observation, it was a very good substitute for the conventional turkey for a Thanksgiving or Christmas dinner.*

The food of the kittiwake gull usually consists of small fish and crustacea, which it is able to obtain near the surface of the water; but on the fishing-banks many of these birds procure a considerable portion, perhaps, of their food from the offal thrown overboard by the crews of the fishing vessels. Its subsistence, however, at this season is exceedingly precarious, and it is generally found with little food in its stomach and very poor in flesh. Although the kittiwake approaches a vessel or boat with considerable boldness, coming as it often does within a few feet of the side of either and recklessly darting almost within arms' length of a man engaged in throwing out a trawl, it nevertheless exhibits a remarkable timidity when a gun is fired. The most noisy and greedy gulls which have been screaming around the vessel are rendered cautious and comparatively quiet by one or two discharges of a musket, and for some time it is difficult to entice them back. However, when one or two, bolder than the rest, have succeeded in possessing themselves of some coveted morsel, the rest take courage, and in a few min-

* Capt. Henry O. Smith is authority for stating that kittiwake gulls, and occasionally some of the larger species, are caught for food by the Newfoundland fishermen in winter, a common rat trap being used to effect the capture. The trap is firmly secured to a piece of board, baited with a fish liver, and allowed to float down astern of the anchored boat on which the crew is engaged in fishing for cod or other species. The greedy gull sees the tempting morsel, makes a dash to secure it, and snap go the jaws of the trap, nipping the unfortunate bird in its grasp. This is repeated over and over again.

utes they have apparently recovered from their fright; but another discharge instantly demoralizes them again. During the violent gales which are so frequent on the fishing-banks in the winter the little gulls, though fully able to breast the force of the fiercest gale, prefer to sit upon the water unless there is a prospect of obtaining food. At such times they can almost always be seen in flocks near the stern of an anchored vessel, gracefully following the undulating upheaval of the agitated waves; one or more perhaps may be on the wing watching for the appearance of the offal which may be washed from the vessel's deck. The least indication of food instantly brings them all on the wing, and, with their usual noisy scrambles in robbing one another, they go skurrying off before the wind, rising and falling over the crests of the breaking waves. It not only behooves the gulls at such times to keep a sharp lookout for food, but they must be equally watchful for their safety; for, should they be caught beneath the crest of one of the huge, curling and topling waves, they would be instantly crushed or torn to pieces. They are, therefore, constantly on the alert in a gale, and are ready to rise on the wing and to fly over the crest of a breaking wave and immediately alight on the opposite side.*

In the spring the kittiwake leaves the bank and goes inshore to its breeding-grounds. Its nests are easily found upon the Newfoundland shores, and very likely at many other places along the coast.†

TERNS.

The common tern (*Sterna hirundo*) Linn., occurs during summer in limited numbers on the banks east of Sable Island. This species was taken by Newcomb when with me on Banquereau. The common mackerel gull of the fishermen, the Arctic tern (*S. arctica*) is very abundant in summer on the fishing banks near Sable Island, where it is said to breed in great numbers. On September 3, 1878, Newcomb shot one of these birds some 25 miles eastward of Sable Island.‡

Like the kittiwake, the terns are exceedingly noisy, and often gather in great numbers about a vessel from which fish-offal is being thrown, but they are rarely abundant on the banks except in the immediate vicinity of Sable Island; they are somewhat difficult to catch on a hook, and also because of the smallness of their bodies, they are seldom if ever used for bait.

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* The following note I find in my journal under date of February 11, during the prevalence of a heavy gale on the Grand Banks which I was riding out at anchor: "The little white gulls sit hovering on the water near the stern of the vessel, occasionally rising on a wing to clear a breaking wave, or to pick up any fish-offal that may be washed from the scuppers."

† In my journal, under date of April 29, 1879, I find the following note relative to the departure of the winter gulls from the outer banks: "The little white gulls are growing scarce, they leave for land about this time."

‡ The specimen alluded to was called an Arctic tern by Mr. Newcomb, who is my authority in this matter.

PETRELS OR MOTHER CAREY'S CHICKENS (genera *Cymochorea* and *Oceanites.*)

There are several varieties of the petrels commonly found in great abundance on the fishing-banks from spring to fall. They usually make their first appearance in April, the date varying somewhat with different seasons—some springs, perhaps, being slightly warmer than others—and remain until after the first snow-storms in the fall. Under date of April 19, 1879, when on the eastern part of Banquereau, I noted that "Petrels made their first appearance to-day. These birds generally leave the bank late in October or early in November and come again in April or May."

Just how many species of petrels occur on the fishing-banks I am unable to say, but I believe there are at least three, and possibly more. Of these, I think Leach's petrel (*C. leucorrhoa*) is the most abundant on the Grand Banks, while the Wilson petrel (*O. oceanicus*) is also numerous.

These birds are excessively fond of oily food, and may always be seen in great numbers around a vessel or boat from which particles of fish liver or other offal are being thrown out. In describing the haggdon, mention has been made of certain peculiarities which the Carey chickens exhibit in the matter of seeking and eating their food; such, for instance, as their supposed ability to follow up a scent, and the way they work together in a united effort to tear into fragments a section of liver which is so large that one bird cannot manage it. A favorite method of feeding which the petrels exhibit is to dance upon the water's surface, picking up any oily particles that may be floating thereon, and which, though small in themselves, in the aggregate afford the birds much food. To them these bits are particularly attractive. As it frequently happens that fish oil, or other fatty particles are being thrown out or washed from the deck of a fishing-vessel, one who may be on board has a very good opportunity of noting these habits of the petrels. When caught, it almost invariably ejects an oily, strong-smelling substance, and the contents of its stomach are thrown out, as a rule, the instant it is taken into a boat or on a vessel's deck. In a very few minutes after being caught its appearance changes wonderfully; and, instead of its feathers looking clean and sleek, they become, almost immediately, damp and dirty, and have a decidedly bedraggled look. If, after being on a vessel's deck for ten minutes or thereabouts, it is thrown overboard, the probabilities are that the petrel cannot fly at all, and it is only with the utmost difficulty that it can rise a few feet from the water, into which it soon falls again. If the bird's strength is sufficient to sustain it in a continuous effort to dry its wings and feathers, it at last succeeds in supporting itself in the air. As soon, however, as it dares, it lights on the water and proceeds to arrange its plumage.

The natural position of the Carey chicken may be said to be that of

constant motion and activity on the wing. It seems to be as nearly tireless as it is possible for any living animal to be. So rarely, indeed, are they seen sitting at rest on the water, that sailors have acquired certain superstitions connected therewith, though these beliefs are not always the same. For instance, I have heard it said by some that to see Carey chickens sitting on the water was a sign of a long spell of calm weather, while others as firmly believed such an occurrence was a sure precursor of a storm.

Whether petrels rest at night or not I am unable to say positively, though there are strong reasons for believing they do not. On hundreds of occasions I have seen them flying about the vessel on moonlight nights, and nothing is more common than for a man on lookout on a dark foggy night to be startled by the chirp of a Carey chicken, which, attracted by the brilliancy of the riding light, suddenly finds himself over the vessel's deck, and in too close proximity to quarters he prefers to avoid.

Petrels have been used to some extent for bait, but because of the small size of their bodies, a single bird being scarcely large enough to bait two hooks, they have never been considered an important source of bait supply. The fact that they are almost entirely indifferent to the presence of man, and that they will gather in great numbers within a few feet of the side of a boat or vessel, renders it an easy matter to kill them. This being the case some of the "shack fishermen," when other sources of bait supply failed to afford the requisite quantity, often killed hundreds of petrels in a single day to make up the deficiency, though it is possible the slaughter of these birds was less than it would have been, because of the superstition common among seafaring men, that it is "unlucky" to kill Mother Carey's chickens.

The most common and effective way of killing them was with a whip, which was made by tying several parts of codline—each part 6 to 8 feet long—to a staff 5 or 6 feet in length. The petrels were tolled up by throwing out a large piece of codfish liver, and when they had gathered in a dense mass, huddling over the object which attracted them, swish went the thongs of the whip cutting their way through the crowded flock, and perhaps killing or maiming a score or more at a single sweep. By the time these were picked up another flock was gathered, and the cruel work went on until, may be, 400 or 500 birds were killed, though, perhaps, it was seldom that so great a number was obtained at once.

GUILLEMOTS.

THE FOOLISH GUILLEMOT OR MURRE (*Uria troile*) Linn.*

In spring large flocks of murres are seen on the fishing-banks, migrating northwardly. I have noticed them in greatest abundance on Ban-

*Although the Guillemots do not come under the head of birds used for bait, I have nevertheless deemed it best to note their appearance on the banks.

quereau, east of Sable Island. The flocks reach this locality in April, and from the 20th of that month to the middle of May are more numerous, as a rule, than at any other time. April 26, 1879, latitude 44° 32′ N., longitude 57° 12′ W., I "saw several flocks of murres," and three days later there were "large numbers of murres."

A single individual is sometimes seen in summer on the banks, but this is by no means a common occurrence. In the fall, however, they are more numerous, as at this season they are performing their autumnal migration southwardly, but, whatever the reason may be, they do not, I believe, appear on the banks in such abundance at this season as during the spring months. They are sometimes killed and eaten by the fishermen, but are never obtained in any considerable numbers. On a few occasions I have shot one or two individuals, and they are some times knocked over with an oar by the men engaged in hauling a trawl, when the murres have approached closely enough to the boat to make such a feat possible. I have noted in my journal under date of October 1, 1878, latitude 43° 54′ N., longitude 58° 32′ W., that "one of the crew killed a murre while hauling his trawl, and I skinned it."

LITTLE GUILLEMOT OR SEA DOVE (*Mergulus alle*) Linn.

The little guillemot, commonly called "Ice bird" by the fishermen, is frequently seen on the banks in winter, more particularly in the vicinity of field ice, but I have never observed it in any considerable numbers. It is fond of staying close to a fishing-vessel at anchor, it being attracted by the offal that is thrown over, and which, when sinking, is secured and eaten by the little guillemot, which is an expert diver. I have often watched one of these birds dive beneath a schooner and taking in its beak a morsel of sinking food, rise on the opposite side of the vessel from that where it went down. It is seemingly almost unconscious that it is encountering danger when approaching a vessel or boat. I have seen it swimming within 2 feet of a schooner's side without making an effort to go farther off unless some one attempted to kill it.

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INDEX.

NOTE.—The references are to page-figures in brackets.

	Page.
Arctic jæger	14
tern	22
Banquereau	11, 16, 22, 23, 25
Bait, preparing birds for	1
Birds, capture of	8
preparation of, for bait	1
Black hagdon	10
occurrence of	10
Burgomaster gull	11, 18, 19, 20
occurrence of	20
flight of	20
Capelin	1, 2, 6
Capture of birds, mode of	18
sea birds for bait	1
Carey chickens	1, 7, 17, 20, 23
Cephalapods	6
Clams for bait	1, 2
Codfish	1, 6
Cod roes for bait	22
Coues, Dr. Elliott	7
Collins, Capt. D. E	6
J. W	1
Cruelty of fishermen	5
Cymochorea	23
leucorrhoa	23
Devil-fish	6
Forked-tail gull	18
Fulmar	1, 10
abundance on Grand Banks	11
capture of	11
diving of	12
edible qualities of	12
flight of	12
food of	12
occurrence of	10
odor of	12
plumage of	11
voracity of	11, 12
Fulmarus glacialis	10
Gadidæ	6
Grand Bank	1, 3, 14, 18, 10
Green Bank	11
Great black-backed gull	18
skua gull	13
Guillemots	24
Gulls	1, 11, 17, 18
capture of	18
cultivated for food	19
edible qualities of	19
flight of	18
Gull chasers	14
Hagdon	1, 16
breeding of	4
capture of	6
cruelty to	5
diving of	5
edible qualities of	9
flight of	5
food of	6
killing of	8
occurrence of, on Grand Banks	3
pot-pies made from	10
preserving of	9
pugnacity of	4
scenting ability of	7
tenacity of life	4
voracity of	6, 8, 9
Hake	6
Halibut	1
Herring gull	18
Ice bird	25
Jægers	1, 13, 16
abundance of	14
capture of	17
edible qualities of	10
occurrence of	13
pugnacity of	16, 17
shyness of	13
tenacity of life	13
Kittiwake gull	10, 18, 20
capture of	21
edible qualities of	21
food of	21
nests of	22
occurrence of	20
voice of	20
voracity of	20
Lant	6
Laridæ	18
Larus argentatus	18, 20
glaucus	18, 19
marinus	18
sabine	18
tridactylus	20
zonorynchus	17, 18, 19
Leache's petrel	23
Le Have Ridges	16
Little Guillemot	25
Mackerel-gull	16
Marble-header	10
Marling-spikes	15
Megalestris skua	18

	Page.
Menhaden slivers	1
Mergulus alle	25
Mother Carey's chickens	1, 7, 17, 20, 23
capture of	24
Murre	24
capture of	25
edible qualities of	25
occurrence of	24
Newcomb, Raymond L	15, 20
Newfoundland	2, 22
Noddy	10, 11, 16
Nova Scotia	2
Oceanites oceanicus	23
Octopus	1
Oil-bird	10
Petrels	1, 7, 22
capturing of	24
flight of	23
food of	23
manner of feeding	23
occurrence of	23
plumage of	23
scenting ability of	23
Pingole	20
Pokes used for bait	23
Pomarine jæger	15
Porpoises	1
Puffinus	4, 5, 6
fuliginosus	1, 10
major	1, 3, 10
Ring bill	18
Ridgway, Robert	3
Sabine's gull	18
Sable Island	15, 22
Salem, Mass	20
Sea birds used for codfish bait	1
dove	25
diving ability of	25
hen	13
Shack-fishing	1
advantages of	2, 3
Shearwater	1, 3
Smith, Capt. Henry O	21
Sooty shearwater	10
Squid	1, 2, 6
Stercorariidæ	13
Stercorarius	14
buffini	15
parisitious	14
pomatorhinus	15
Sterna hirundo	22
arctica	22
Stinker	10
Tern	16, 22
noisiness of	22
occurrence of	22
Thatcher's Island	15
Uria troile	24
Whiptails	15, 16
Wilson petrel	23
Winter gull	20

O