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THE GANNETS OF BONAVENTURE ISLAND.*

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Of the great Gannet colonies that at one time dotted both east and west coasts of the North Atlantic but few now remain. There are several surviving colonies around the British Isles, notably on the Bass Rock from which the species obtains its specific name, Sula bassana, and Iceland still has a rookery or so but in the new world the species is now reduced to two localities, Bird Rock, near the Magdalen Islands, and Bonaventure Island, off the Bay of Chaleur side of the Gaspe Peninsula. The Bird Rock rookery lying out in the middle of the gulf is difficult of access, but Bonaventure Island within three miles of the mainland and the village of Perce is easily reached and is one of the natural wonders of eastern Canada.

Any small scale map shows the great indentation of the Bay of Chaleur in the south shore of the Gulf of St. Lawrence. The land projection separating it from the main body of the gulf is the Gaspe Peninsula and just inside the extreme tip lies the village of Perce with Bonaventure Island just off the coast and forming a partial shelter to its anchorage.

Perce is noted for several reasons. As one of the oldest settlements on the coast, it was the headquarters of an old and important fishing company and hence the supply centre of the surrounding country before the railroad came, reorganizing old systems of distribution. With Mount Saint Anne towering behind it and flanked by the giant walls of the Murailles rising from the sea, it is one of the few spots in eastern America where sea and mountain scenery combine in a single landscape and, whilst the heights are not as overpoweringly impressive as in the mountains of the far west the scene is vigorous and satisfactory to eastern eyes. Just off shore from the village lies Perce Rock a striking monument to geological history. A great lone rock mass sheer and straight on every hand, some twelve hundred feet long by three hundred high; pointed and highest at the shore end and no more than eighty feet through for the rest of its length, recalling the hull of a great ship that has just left the ways and is taking its initial plunge into the sea. In the centre of the seaward half is the great arch that has given it and the adjoining village its name. Eighty feet from spring to spring and of an equal height, it pierces clear through the rocky mass and frames a view of blue sea and sky beyond.

With these scenic advantages alone Perce should be famous, but adjoining is Bonaventure Island and the bird rookeries on its outer or seaward face. The island itself is roughly circular in outline and about three miles across in its greatest dimension. On part of the main land side the steep shores are broken down to the sea level but everywhere else they are steep unbroken rocky cliffs rising on the seaward face some three hundred feet straight from the sea. Here are the bird rookeries.

Approaching this side from the sea, one is aware that every ledge and shelf is covered with white as though snow had piled in drifts upon them allowing only the overhangs to show dull red between the glistening surfaces. A wind seems to stir the white masses, and they blow off in eddies and clouds of drifting flakes that finally resolve themselves into great white birds that swirl about the cliff faces and circle round the intruder amid a pandemonium of hoarse cries. These are the Gannets, the Solon Geese of older authors, each as large as a goose, pure white with black wing tips and a slight creamy wash on crown and hind neck. The air is filled with their waving wings. They fill it like a swarm of giant midges circling in the sun.

The rocks from which they came come down straight into the sea with white surf breaking at their feet. Here and there in calmer moments good boatsmanship and agility effects a landing on some

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of the shelving bottom ledges from which a sure foot and steady head gives access to some of the nesting ledges above. As the investigator jumps ashore more of the birds leave the ledges over head, stopping but momentarily to relieve themselves of the weight of the last meal, and a shower of partially digested fish that they disgorge falls all about with squashy flops making the moment interesting and not a little apprehensive to the intruder until the worst of the shower ceases.

The rock is a coarse conglomerate of innumerable pebbles of all sizes in a matrix of brick red sandstone. The binding material has weathered away leaving the stones protuberant and more or less loose. While this roughness gives good foot hold there is the constant and well founded fear of their loosening under the tread and precipitating the explorer a hundred feet or more into the sea or on the jagged rocks below. Good hob-nails, stocking feet or thin rubber soles are absolutely necessary on such ground and are sources of considerable satisfaction when by dint of strenuous climbing one arrives at an upper ledge and greater height increases apprehension.

Many of the ledges wind along the face of the cliff for considerable distances narrowing here to mere toe holds with steeply rounded edges, widening there to shelves several feet across blocked occasionally by fallen boulders from above or rendered still more treacherous by the slippery wet oozings seeping down from upper levels. Everywhere is the dazzling wash of white guano, and the strong acrid smell mingled with that of decayed fish liberally scattered about and steaming in the hot sun makes even hardened enthusiasts catch the breath. The great white birds fill the air fanning the cheek as they pass by at one side of a great circle, the other segment lying far out over the water. On the ledge ahead are many more, some brocking young or eggs, on their nests of matted seaweed, others sitting gravely watching the intruder. When approached too closely they lumber awkwardly down from the nest, scramble to the inclined edge and throw themselves over to catch the air on their broad pinions and join the protesting ever passing throng.

Though the Gannets are the most conspicuous form of bird life on the ledges they are not the only one. Here and there are long horizontal cracks extending ten or fifteen feet back into the heart of the rock. The floors of these are covered well with red mud, mixed with guano puddled and padded by the feet of Murres, Razor-billed Auks and Puffins whose eggs can be seen scattered here and there on the bare floor. When approached hundreds of these birds rush out from the bowels of the

earth towards the light, hurl themselves into the air regardless of obstructions, and so off to sea. Caution must be used in investigating such places, and the story is current and easily to be believed, that one uncautious intruder had both eyes pierced by the sharp bills of the escaping birds. When the first rush is over one can look back into the depths of the creases and, lined against the wall at the back, see rows of young or lingering Murres lined up like soldiers on parade their white breasts gleaming in the shadows. The Murres show little inclination to return when disturbed by uninvited humans, the Puffins, however, keep going and coming continually along the ledges just beyond the danger zone. An interesting fact seems to be that though these birds are not particularly wild on the breeding ledges they seem to have absolutely no fear of danger coming at them from the depths of the cliff itself. One can crawl into one of these deep cracks and squeeze along on the stomach, if the stomach permits and revolts not; and so worming along can come to the mouth where the Puffins are disporting themselves on the outer ledge. They look inquisitively at the queer invaders of their stronghold but seemingly fail to connect him with danger and can be watched at nearly arm's length for hours at a time. With their great gaudy coloured bills, small staring eyes and funny waddling little motions they are indescribably quaint while the absolute gravity of their manner and unconsciousness of their comedy makes the humour of their bearing almost irresistible.

Out on the ledges during this retirement many of the Gannets return. On reappearing a few of the nearest reluctantly lumber off and their single egg, or the black-faced, white down-wrapped young can be examined at leisure. The nests are conical piles of weed some six to ten inches high when new, merged into the surrounding ground with guano. The saucer-shaped depression on the top contains the single egg stained red with the mud from the rock, like all other eggs on these red cliffs. Older nests containing young have been tramped flatter and flatter by the growing young and the parent bird that seems to cease the constant construction, adjusting and repairing indulged in previously as soon as the young are hatched. Finally, when the young are ready to leave, the nests are mere flat mounds with little form or shape.

In rougher weather the ledges can only be reached from the top of the cliffs but the approach from thence is as interesting in its way as from below. Landing on the shoreward side at the village of Bonaventure one proceeds along the grass grown road between quaint fisher-folk houses and garden patches through fields bright with daisies, meadows purple with iris and dotted with cattle, trimmed balsam and spruce groves between which cow pads wind like paths in a Japanese garden. We climb steeper hills, skirt rock shoulders, finally plunge into testing at the intrusion so near their nesting ledges, perch on the tree tops and hoarsely scream as we pass. Finally, the last declivity is surmounted and open meadow at the head of the Gannet rookeries is reached.



General view of cliffs; birds leaving ledges.

the heavier evergreen woods and follow along the wooded cliff verge, the sea showing between the tangle and tree trunks at the right and the dark, mossy woods, damp with sea mists, mounting the rise on the left. At one place the Herring Gulls, proAt first nothing is seen but the green sward kept to an emerald hue by the damp gulf air and the sharp line where it drops off against the blue sea or sky. A low murmur of hoarse cries rises up from innumerable throats hidden over the crest and

an occasional breeze wafts a whiff of acrid guano odour from below. Going out on a small projecting point, a spot is found where a long line of cliff face can be enfilated and a wonderful sight greets the eye. Looking down on the upper surfaces, tiers of irregular white shelving are seen, peopled with hundreds of birds, the din of raucous voices increase and hundreds of great white gannets launch out into the air. They circle out over the sea and return to leeward, sailing by and passing the cliff edge at almost arm's length against the wind. They pause as they reach a strong salient point of the cliff beyond and meet the full strength of the breeze, pause a moment, and then fall off seawards to circle a quarter of a mile out and return and repeat indefinitely. As each bird passes it turns its ivory bill and blue circled silvery eyes full upon the intruder, follows him with calm impersonal stare until well past and then straightens away on its course to be replaced in a moment by the next one that repeats the motions to a nicety. Bird follows bird so fast that they cannot be counted. Each the exact duplicate of the last until one is finally almost forced to turn the eyes away from the confusing repetition to prevent dizziness in a situation where dizziness may be fatal.

There is nearly half a mile of these cliffs peopled by Gannets, ending at the far point in Great Gannet Ledge where the most spectacular view is obtained. Every here and there are small salients where one can closely approach the edge and, reclining on the grassy margin, view the scene at ease. After a few minutes the birds begin to return to their stations and with them one sees Murres, Puffins and Razorbilled Auks hurrying to and from their nesting crevices throughout the height of the cliff. The Puffins with their quick bee-like buzz of wings, and the Murres and Auks with rather slower wing-beat fly with the business-like directness of aerial torpedoes. The Gannets crowd the ledges until it seems that there is no room for more, but still they come. Occasionally one skirts a shelf a considerable distance before finding unoccupied foothold then it forces its way between adjoining birds sometimes knocking several off with its broad wings as it alights. One holds his breath almost expecting to see these so unceremoniously treated dashed on the rocks three hundred feet below, but no, before descent begins the ample wings open and the victim glides off in safety, calling back protesting grunts as it joins the circling flock. The new arrival looks around, eyes its nest further back on the ledge and measures the crowd between, then with an awkward waddle, makes straight for its objective amid a shower of blows of bill and wing from disturbed

neighbours en route. Arriving at its own nest site it exchanges challenges with all surrounding it. At first threatening these interchanges become more formal and end at last with a sort of conventionalized ritual in which the head of opposing birds is thrown straight up in the air and the bill opened and closed, then the head is held at right angles to the neck and pumped up and down several times as if bowing. This is repeated several times, becoming more and more prefunctionary until it dies away. But even after all are at rest this series of conventional courtesies is exchanged occasionally between sitting birds. When a bird desires to leave the nest formality is dispensed with. Though it may be well at the back of the ledge and separated from the verge by numbers of other birds it suddenly makes straight for the edge, wabbling, flopping and and sliding irrespective of who or what is in the way. By a sudden dash it takes all by surprise and almost before a bill can be brought against it or a blow driven home it is over the edge and away leaving a wake of upset and protesting birds who momentarily turn their weapons against each other and then philosophically resume their places and comparative quiet reigns again.

A steady head can reach some of the occupied ledges nearer the top unaided, but a rope and stout helping hand at the top are of great assistance and insure confidence. There one can scramble about amongst the sitting birds. They are not very wild on the less accessible ledges and when they have young can even be caught in the hand, but their bills are powerful, finely saw-cdged and can make a nasty wound, and it is better to take the obvious fact for granted than to demonstrate it. The young when first hatched are shapeless, moist, gray, slug-like creatures that can barely raise their heads unsteadily from the ground and then let them fall again with helpless weakness. Later a white down comes out over all the body except the face, which has a black shivelled appearance, like that of an old, old negro with features surrounded with white wool. They are extremely quaint as they stand or sit up with the gravity of judges. The adult as mentioned before is pure white with black wing tips and a golden creamy wash over crown and nape. The bird of the year when able to shift for itself is smoky brown covered over all with fine white Vshaped spots. In between this latter plumage and the adult is every intermediate stage of pied spotting. Contrary to what would naturaly be expected such birds are comparatively scarce in the neighbourhood of the rookery perhaps averaging in the total population less than one in fifty. The only explanation that can at present be advanced is

that the majority of the juveniles remain out at sea until maturity and only the breeding adults come in to them in the nesting season, accompanied by a few juveniles that can be regarded more or less as accidentals.

Many pages could be covered with the results of the study of these birds on their nesting ledges. It is to be noticed that through the day all birds have the bill closed, while flash-lights at night show them with mouths wide open. A night visit to the cliff well repays the trouble. The continual chorus of harsh voices is subdued and there is little movement hauntingly by. It is strongest in the vicinity of certain cracks in the ground and the clefts under large stones scattered about the level. Weird voices are heard in the air and soft black shapes sweep by. They are Leach's Petrels, and the not unpleasant cdor proceeds from them. They nest in cavities in the ground where they spend the day and are only seen over land at night. Then they sweep around beating up and down the aisles of the spruce clumps or over the grassy meadows and the night is filled with them and their little low, weird song.

Such is the great bird colony of Bonaventure



A Family Groupe.

on the ledges. However, there always seems to be a few uneasy spirits abroad even at night. Occasionally one returns and, in the darkness against the glow of the sea, glides across the view like a pale ghost. Where it alights, off in the darkness, there is an awakened chorus of voices and then silence comes again. From the sea in front come soft questioning mu-u-u-r-r-s of the Murres taking their young off to sea before they are fledged, for none linger in the neighbourhood of the rocks once they take to the water. A sweetish pungency, different from the sharp reek of the ledges, wafts Island. During cur visits in 1914 and 1915, we estimated that there were in the neighbourhood of about eight thousand birds there. Economically they are of no importance either way. No one thinks of eating them, and they probably would be less than indifferent for this purpose. Their food is fish, mostly herring, though other fish of similar size and squid are taken. Their effect on the fisheries is nil. When herring are caught by the boat load expressly for fertilizer, or their eggs are shovelled up from windrows on the beach for the same purpose, the inroads these birds can make in the

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countless numbers is unappreciable. They are magnificent birds and their presence adds considerably to the interest of all the coast whilst the presence here of this great rookery makes a sight that should prove a constant asset in attracting visitors to the neighbourhood. The Gannets are looked upon by most of the local fishermen with favour. To the fish-wise ones their actions indicate when the squid and herring, much sought for for bait, come and where they are and about how deep they lie. In foggy weather the cries of the birds act as a natural fog horn warning mariners away from the dangerous rocks of the rookeries and many a shipwreck has been avoided by the hearing of their timely warnings. Yet in spite of the uselessness of the dead birds, their obvious beauty, and some slight practical usefulness, I regret to say that they are shamefully persecuted. I have seen a boat containing eight to ten guns with unlimited ammunition, repair to the ledges for a day's sport (?) The results were seen later when the rocky base was littered with dead and wounded birds and their sodden remains washed back and forth in the adjoining sea. At one point on the mainland beach some five miles from the scene of the slaughter, within a hundred yards a dozen or more birds were to be seen where they had been stranded by the tide, but the saddest sight of all, was up on one of the lower ledges where pot-shots had been taken of the crowded sitting birds. Here for some distance lay a trail of dead birds still on the nests where they had been shot with the young pinned beneath the cold bodies of their parents. Other young stood disconsolately about until a humane heel or blow of a gunstock put an end to their hunger and cold. Below on rocks just above the swirl of the sea where they had managed to clamber were numerous wounded adults patiently awaiting death that lingered in its coming.

There is a movement under way by the Conservation Commission to reserve this wonderful spot as a perpetual bird reserve under the control of Dominion or Provincial authorities, but such is the conservativeness, to call it by its mildest name, of the local population that considerable objections have had to be overcome and it is still doubtful after three years of effort, whether the plan will succeed or not. Some day the local population will realize that these rookeries are a source of attraction to strangers and too valuable a local asset to be wantonly destroyed. Until some such light breaks upon the community, and awakens public opinion and a spirit of protection, the senseless destruction will proceed. It is to be hoped either that the protective measures will be completed or this awakening will come before it is too late.

It is reported* that the fields over which the battle of the Somme raged during the late summer and autumn of 1916 were thickly carpeted with blooming plants less than a year later. July of 1917 saw vast stretches of scarlet poppies, interspersed with acres of chamomile (Matricaria chamomilla, L.) and large patches of yellow charlock, glorifying what had been but a dreary waste of mud and water Half-hidden throughout the preceding winter. within this luxuriant growth white crosses mark the graves of the dead. Where shells left yawning holes, water has gathered and formed ponds, which are rendered more or less permanent by the nature of the soil. In and around these flourish the annual rush (Juncus bufonius), the smartweed (Polygonum persicaria), and numerous water grasses. Dragon flies hover about the pools, which teem with water beetles and various other forms of pond life. The woods which once covered the uplands have been destroyed almost entirely by the heavy shelling. Only at Aveluy Wood a few badly broken trees still live, and these rise from a dense growth of rosebay willow-herb (Epilobium angustifolium). The extraordinary method of cultivation of the soil apparently has increased its productive power. The underlying chalk formation has been broken up, mixing with the subsoil and the old surface soil, thus forming a new and very fertile combination, from which the various seeds, many of them perhaps long buried deep in the ground, have sprung with great vigor. Patches of oats and barley and occasionally of wheat are to be seen. These may have been sown by the Germans, or they may have lain dormant in the ground since before the war when this land was all under cultivation. Along the roadsides are traces of the old permanent flora; while here and there remains of currant and other bushes show where a cottage stood with its garden.-The American Museum Journal, May, 1918.

A Check List of North American Amphibians and Reptiles, by Leonard Stejneger and Thomas Barbour, issued by the Harvard University Press, is a work for which there existed an urgent need. The list has been prepared generally upon the lines of the American Ornithologists Union Check List of Birds. As Dr. Stejneger and Dr. Barbour are the foremost herpetologists in North America, students of the subject will have the greatest confidence in the book.

^{*}Capt. A. W. Hill, Assistant Director Royal Botanic Gardens, Kew, England, in the Kew Bulletin of Miscellaneous Information, Nos. 9 and 10, 1917.

GANNET Sula bassana (Linnaeus)



Taverner, P. A. 1918. "The Gannets of Bonaventure Island." *The Ottawa naturalist* 32(2), 21–26.

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