

*SUTTON—Short-tailed Shearwater.**Puffinus tenuirostris*, Short-tailed Shearwater or Petrel
(Mutton-Bird).

By J. Sutton.

On Monday morning, 1st May, 1933, an immense flight of this species occurred along the South Australian coast. I have been able to secure the following particulars regarding the occurrence:—Mr. T. Justice, who is employed by the Harbors Board at the Outer Harbor, saw, on his arrival there by train at 7.10 a.m., immense numbers of these birds flying over the sea, and extending as far out, as could be observed; at a height of about 15 feet above the water, with about the same distance between each bird. All were flying in a westerly direction. Birds would fly down and just tip the water, seemingly as if picking something off the surface. At 7.30 a.m. the flight was still going on westerly over the sea, and many birds as well were then flying over the land of the harbor promontory to the sea on the inner side. At 8.30 a.m. the flock had dwindled down to stragglers flying westerly. He considered there must have been hundreds of thousands in the flock, and during the 29 years he has been at the Outer Harbor he has not witnessed such a sight before. Two other persons confirmed the occurrence of the flight, and reckoned there must have been millions of birds. One of these men was formerly employed at the lighthouse on Althorpe Island. He knew the species well, as it bred on that island.

Concerning the direction of flight and numbers of the birds the following letters relate to Brighton, Seacliff, and Marino, 16-17 miles south of Outer Harbor, on 1st May:—

Miss Nita O. Thompson, of No. 151 Fisher Street, Malvern, S.A., wrote on 15th June, 1933:—“Regarding the Mutton-Birds which we were discussing yesterday, I looked up my diary on my return home, and found the following brief statement—‘May 1st, 1933. Hail, rain and sunshine. Saw migration of birds—flying low, over the sea for hours.’ I first noticed the birds at approximately 10.45 a.m., when sitting on a seat immediately in front of ‘Astoria’ (Seacliff). I watched them until 12 o’clock, then left the beach, but returned about 2 p.m., and found they were still migrating. I watched until nearly 3 o’clock, then saw no more of them, and left the beach again. Rough grey-green sea met darker water some little distance out, and the birds, flying south, seemed to keep straight along this dividing line

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Much of the time they were extremely difficult to see, and I repeatedly thought they had ceased, but after watching intently for a few minutes I saw them skimming close to the water. Intermittently, single birds would fly up for what seemed to be a couple of yards, and then would swoop downward. They appeared to be diving into the sea, but it is possible they just joined the line again, for the sea being rough and the birds being dark in colour it was almost impossible to see which they did. At times there was a fairly long interval before they rose, at other times first one then another would rise in fairly rapid succession, until there might be three or four up together. The birds did not fly in very close formation. There appeared to be a continuous stream, about three yards in width. Often there might be several nearly abreast, and often there appeared to be a space of a foot or two before there was another bird (these, of course, are only 'shore' distances, I cannot judge water distances). Time after time, when I thought they had ceased, the birds, rising above the line, enabled my eyes to focus again, and to distinguish the line against the water. Before I left the beach I watched for a short time, and could not see either the main line or the irregular higher fliers, so concluded they had all passed."

Mr. H. C. D. Collyer, of No. 164 Esplanade, Brighton, wrote on 15th June, 1933, in answer to my inquiry:—"If it had been said there were 'hundreds of thousands' at Brighton I would have said they were making a very extravagant estimate altogether of the storm-driven Mutton-Birds. It was about 10 a.m. on the Monday (1st May, 1933) that my wife and I were watching the heavy squall blowing down from the north-west, off Glenelg. First Hallett's Cove, then Marino Rocks became obscured, and as the driving mist enveloped Seacliff I noticed numerous dark birds (can truthfully say scores) trying to breast the storm, slightly inland and above the edge of the cliff northward of the Kingston Hotel, up and down, then hovering on outspread pinions, just as the Seagulls do along the seafront when there is a stiff gale of wind off the sea. When we became involved in the hailstorm we lost sight of the birds, but as the low-driving clouds disappeared from off the sea we really did see *hundreds* of the birds swooping along from north to south between the long lines of rolling, foam-tipped waves about two miles off the shore. I do not remember seeing any about over the sea after that morning, and I was sorry I could not spare the time to make an extended trip along the shore during the following day or so."

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On 19th August, 1933, Mr. Collyer again wrote to me:—
“Further to my letter in answer to your inquiry re the reputed number of Mutton-Birds that were migrating down the Gulf a short while ago, I would like to report a conversation I had yesterday with a young fisherman, who lives on the hillside close to the Marino Rocks station. He says he noticed the birds streaming down over the sea from the north as early as 7 o'clock in the morning, and he reckoned there must have been millions of them. As I first noticed the birds beating against the squall over Seacliff shore between 9 and 10 o'clock, I must have witnessed just about the rearguard of the host, hence my estimate of thousands only . . . ”

The following letter from Mr. T. G. Brown, of Robe, S.E., S.A., to “Rufus,” of “The Advertiser,” dated 3rd May, 1933, seems to refer to the Short-tailed Shearwaters. Robe is 180 miles south-south east of Outer Harbor, in a direct line (following the coastline the distance would be some 250 miles). “Just a short note in connection with a phenomenon observed here for several hours this morning, evidently a case of bird migration. My first knowledge of the fact was at around 8.30 a.m., but earlier risers than myself had noticed the flight for an hour before, quite possibly the birds were in flight earlier still, in fact, may have been passing through the night. All I can vouch for is from 7.30 a.m. until 12.30 p.m. They appeared to be coming in from the land on to the bay at the beginning of the Long Beach, and flying out of the Bay over what we called South Reef. It was one continuous stream of birds, which I can best liken to a river flowing. Later in the morning, at between 11 o'clock and noon, I ran up to the obelisk with field-glasses, and they were flying within one hundred yards of the obelisk and turning south down the coast, I could not trace them beyond Goat Island. They appeared to be the size of a Seagull, but were all black. At least to me they appeared so, but another observer thought he could see a strip of white in the wing. They were not fast flyers. Appeared to me to be tired, but none settled so far as I could see for a rest. All just kept on “follow my leader” style. I timed them flying past the obelisk, and counted 43 in 15 seconds past a set point. (This was best at the time 11.30 a.m.). They were thinning out then, and had been at least five times as thick earlier in the morning. A rough calculation of my own, based upon numbers counted, would place at least 50,000 flying past in the five hours' observation. They have ceased now, time 2 p.m. Unfortunately, I did not

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think of inquiring at Kingston or Beachport on either side of us. It is evident that our first thought that they were coming in from the land was wrong, and instead they were following the coast.

The following specimens were received by the S.A. Museum—measurements in centimetres, weights in grammes:—

		Total Span of			Donor.
		Length.	Wings.	Weight.	
2/5/1933, Brighton -	♀	41.9	95.1	637	(1½ lb. H. C. D. Collyer
6/5/1933, Brighton -	♂	36.7	85.8	232	H. C. D. Collyer
3/5/1933, Seacliff -	♀	40.6	89.6	368	A. McKenzie
3/5/1933, Seacliff -	♂	41.1	92	252	A. McKenzie

In each case the stomach was completely empty, and the ♂ of 6/5/1933, was just skin and bone. They were all young birds.

On Sunday evening, 30th April, about 6 p.m., a south-westerly gale, accompanied by rain, sprang up, and continued late into the night, but the wind and rain were from the north-west on the morning of 1st May.

It is impossible to explain this flight. By the information I obtained the birds were widely spread out, and flying westerly at 7.10 a.m. at Outer Harbor, yet numbers were seen at Seacliff about the same time going southerly in a stream. Had the flock lost its bearing? It might probably be that the young birds on their westerly migration, in a weak state after some ten days' starvation, were driven shorewards by the Sunday night's gale, and, as Dr. Morgan suggests, that hugging the shore they turned into Backstairs Passage and came into St. Vincent's Gulf, instead of going seawards south of Kangaroo Island. The Robe occurrence on 3rd May is a mystery.

Through the good offices of Mr. H. C. D. Collyer, the S.A. Museum has received the following specimens of this species, which he has found on the Brighton beach from time to time, generally after stormy weather:—25/4/1926, ♀; 26/4/1926, ♂, ♀; 1/5/1927, 4 ♂ juv., 2 ♀ juv.

From these dates it might be assumed that if the birds on migration meet with gales they may be driven towards the coast. The six young birds obtained on 1st May, 1927, were in good condition, and contained a vast amount of fat. (The contents of the stomachs, if any, were not taken). The date of that migration was about the same as the one in 1933!

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In South Australia there are records so far of the species breeding on the following islands:—Althorpe (big); Gambier; Neptunes; Williams, Lewis, and Hopkins, near Cape Catastrophe; Franklin, St. Peter's, and St. Francis off the west coast. Not on Kangaroo Island.

This species is a member of the Order *Procellariiformes* (*Tubinares*), Tube-nosed Swimmers; Family *Procellariidae*, Petrels. Its habitat is given in the Official Checklist as—Bass Strait, Tasmania, South Australia, Eastern Australia, New Zealand, to Japan, California, Pacific Ocean.

The adult bird is sooty-brown to black in colour; iris, dark brown; "legs and feet, dark grey, almost black; bill, black; total length, 47cm.; span of wings, 100 cm." (A. M. Morgan). The young birds are generally lighter in colour, with throats white. The sexes are alike in colour. An Albino, not sexed, was sent to the S.A. Museum in February, 1900, by Mr. E. G. Payne, a lighthouse keeper on Althorpe Island.

The following particulars are culled from A. J. Campbell's "Nests and Eggs of Australian Birds, 1900":—The birds come in from 13th to 16th September to clean out the burrows, then go out to sea, and return about 18th November and continue for about ten days, the great focus of arrivals occurring probably on the evening of the 25th or 26th November. The burrow is scraped in an oblique direction from one to seven feet in length. The clutch is one egg, white in colour, of an average weight of 3½ oz., and elongate or roundish in shape. The female lays during the night she arrives or the night following. After the egg is deposited she leaves for a week to recruit and grow fat at sea, while her lord steadfastly sits. He goes out the following week, and so on, turn and turn about, for eight weeks, till the egg is hatched. (Bishop Montgomery states that the male returns every evening, and probably feeds the female during incubation.) During our trip to the Furneaux Group we ascertained the first eggs were taken on Babel Island on the 18th, while previously we had taken eggs on the 20th on New Year's Islands (off N.W. corner of King Island). Both parents go out for food. The locomotion of the birds is a peculiar waddle, with legs extended and apart, and wings flapping along the ground. About 3.30 a.m. birds begin to depart seaward. Birds in ones or twos waddle up, or sneak through the grass like rats, then, spreading their wings, take a short run and launch over the cliff and disappear into the gloom. Some, on reaching the cliff, pause for a minute or two, then, with a neat spring off the

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feet, sail away. Others flounder along, striking a tussock or some other obstacle before they get fairly on the wing. This performance ceases about 4 o'clock, when all the outgoing birds have departed. The birds return after sundown. The young are fed in the burrows for about three months, till about the middle of April. At a certain stage a young bird will weigh about 3½ pounds, and be heavier than either of its parents, who at this stage desert it, and proceed to sea for good. The youngsters will then thrive on their own fatty nature for a week or so; quills and feathers sprout, and the birds, becoming hungry, and, having learnt to stretch their own wings, clear out too, about ten days or a fortnight after their parents.

Food.—Littler, "Birds of Tasmania," states that "the mouths and throats of a couple of individuals secured for taxidermical purposes (on Ninth Island, Tasmania, on 29th September, 1909) were full of a pasty substance of the appearance and smell of semi-masticated tinned salmon. It is generally thought that the food of this species consists of "whale food, an oily substance, consisting of animalculae, found floating on the surface of the water." ("Whale feed" is described in A. C. Bent's work as "small shrimp-like creatures about an inch long, and which at times are so numerous as to colour the water for acres brick-red.")

The name Mutton-Bird.—R. H. Davies, of Tasmania (1843), stated:—"The old birds are very oily, but the young are literally one mass of fat, which has a tallowy appearance, and hence I presume the name of 'Mutton-Bird.'" (A. C. Bent).

Littler, "Birds of Tasmania," describes the process of "birding." The birds are salted or pickled in barrels. In 1904 550,000 birds were captured. The fat and oil are sold. The feathers are exported.

In the daily press of 18th August, 1933, it was stated that the first experimental shipment of ten casks of birds (Tasmanian Puffin or Ocean Duck) would leave for London on the morrow from Melbourne by the "Largs Bay," Aberdeen and Commonwealth Liner.

The Short-tailed Shearwaters leave Australia about the end of April, migrate northwards by way of the western side of the Pacific Ocean to the Bering Sea, and return to their breeding-places in Australia by way of the eastern side of the Pacific Ocean about September.

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The following extracts may be of interest:—

From Flinders, "A Voyage to Terra Australis," Vol. I.; page clxx., 1814, 9th December, 1798. "The south-west wind died away in the night, and at six next morning, December 9, we got under way with a light air at south-east. After rounding the north-east part of the three hummock island, our course westward was pursued along its north side. A large flock of gannets was observed at daylight to issue out of the great bight to the southward, and they were followed by such a number of the sooty petrels as we had never seen equalled. There was a stream of from fifty to eighty yards in depth, and of three hundred yards, or more, in breadth; the birds were not scattered, but flying as compactly as a free movement of their wings seemed to allow; and during a full *hour and a half* this stream of petrels continued to pass without interruption, at a rate little inferior to the swiftness of the pigeon. On the lowest computation, I think the number could not have been less than a hundred millions*, and we were thence led to believe, that there must be, in the large bight, one or more uninhabited islands of considerable size."

* "Taking the stream to have been fifty yards deep by three hundred in width, and that it moved at the rate of thirty miles an hour, and allowing nine cubic yards of space to each bird, the number would amount to 151,500,000†. The burrows required to lodge this quantity of birds would be 75,750,000; and, allowing a square yard to each burrow, they would cover something more than eighteen and a half geographic square miles of ground."

[† A. J. Campbell pointed out that the correct computation was 132,000,000.]

[As on 9th December the incubation period would have been in progress a little over a fortnight, and, assuming that this great flock was paired off, there would be 132,000,000 burrows, each probably containing a bird sitting on an egg!—J. S.]

From David Collins, "An Account of the English Colony in New South Wales," Vol. II., pages 142 and 172, 1802:—(P. 142).—"On 12th January, 1799. The Norfolk sloop arrived, with Lieutenant Flinders and Mr. Bass, from the examination of Van Diemen's Land. As the result of this voyage was the complete knowledge of the existence of a strait separating Van Diemen's Land from the continent of New Holland, it may not be improper to enter with some degree of minuteness into the particulars of it; and the writer of these pages feels much gratification in being enabled to do this, from the accurate and

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pleasing journal of Mr. Bass, with the perusal of which he has been favoured. (P. 172).—9th December, 1798—near Three Hummock Island. For many hours during the early part of the morning, a vast stream of Sooty Petrels issued from the deep bight, which had been left unexplored, and passed the vessel on their way to the westward. There must have been some millions of birds. Thence they were well assured there was at least one island in that bight, if not more than one, as they had imagined. . . .”

From “Life Histories of North American Petrels and Pelicans and their Allies.” By Arthur Cleveland Bent, 1921, United States National Museum Bulletin, 121.—“*Puffinus tenuirostris*, Slender-billed Shearwater.—Among the vast flocks of dark-colored shearwaters which we saw as we passed through Unimak Pass and entered Bering Sea, on June 4, 1911, we were confident that this species was represented. Unfortunately, we were unable to collect any specimens for identification, and we shall therefore never know whether these immense gatherings of sea birds were made up of sooty (*Puffinus griseus*) or slender-billed shearwaters, or both. Mr. Rollo H. Beck and I thought we recognized both species, as they flapped away almost under our bow, but I have since decided that any such identification would be worthless, as it is difficult to distinguish the two species even in the hand. Whatever the species may have been, its numbers were beyond estimate, the smooth surface of the sea was covered with them for miles and miles, a vast multitude, far greater than I had ever seen, or ever conceived, and as we passed through this great sea of birds they merely parted under our bow sufficiently to let us pass. After seeing such a spectacle, I can more easily believe the accounts I have read of the astonishing abundance of the “mutton-bird,” as this shearwater is called, on its breeding grounds about New Zealand, Australia, and Tasmania.

“Winter.—After the breeding season is over, in April, the slender-billed shearwaters apparently migrate into the Northern Hemisphere in the north Pacific Ocean. The northward migration route seems to be mainly on the Asiatic side, probably to the vicinity of the Commander and Aleutian Islands. Doctor Stejneger (1885) suggested that a few of these shearwaters might breed in that region, but it now seems to be well established that the species is merely a summer sojourner in northern seas between its breeding seasons in Australian waters. Mr. Leverett M. Loomis tells me that this species is seen on the California

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coast only late in the fall on the return migration to its breeding grounds. The large numbers seen off Monterey, between the 14th and 20th of December, in 1895, by Mr. Joseph Mailliard were probably belated migrants. The larger series of slender-billed shearwaters in the collection of the California Academy of Sciences is conclusive evidence of the abundance of this species on the coast during the southward migration in the fall.

"Migrations.—Northward in the western Pacific Ocean, and southward in the eastern. Dates: Commander Islands, Copper Island, May 29, and Bering Island, August 22; Aleutian Islands, Unimak Pass, July 29, and Unalaska, August 31; Alaska, Ugashik, September 15; British Columbia, Victoria, October 24; Washington, August to November; California, Point Pinos, October 13 to January 30; Main flight passes California in November and December.

"Casual Records.—Northernmost record is one taken in northern Alaska (Kotzebue Sound, July 4, 1899). Latest winter record is for British Columbia (one taken February 23, 1904)."

From "*The Auk*," pp. 361-362, 1930.—"F. L. Jaques with the American Museum of Natural History Expedition to the Arctic Ocean." May to September, 1928.

"*Puffinus tenuirostris*, Slender-billed Shearwater (and *P. griseus*, Sooty Shearwater).—Shearwaters were present in the North Pacific on both passages, and abundant about Unimak Pass in May and June. They (probably all *tenuirostris*) were extremely abundant near Unalaska Island, June 26 and 27, when they appeared to be moulting. Numerous feathers, which included the flight feathers, were on the water, and the birds had a very bedraggled appearance. Shearwaters were present throughout Bering Sea, very abundant in Bering Straits, July 27, and off East Cape, July 31. Two were seen at 70 degrees and 71 degrees north latitude respectively, and they were extremely abundant on August 23, 24, 25, 30, and September 1, 2, and 4, between 69.30 degrees north latitude and Bering Strait. On our south bound passage Shearwaters were present in small numbers in Bering Sea, more numerous near Unimak Pass, though not so plentiful as in May. Birds, probably *griseus*, were seen July 31 near East Cape and in October near the Queen Charlotte Islands. Many others were probably of this species, but *tenuirostris* is no doubt much the more numerous. The Shearwaters never range close to the ship as do the Fulmars."

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From "The Auk," April, 1924, page 306. "Notes on Panama Zone Birds." By Thomas Hallinan. "*Puffinus tenuirostris*, Slender-billed Shearwater. Naos Island, June 8, 1915. Male, picked up on the water. There were several floating on the water in the vicinity, apparently exhausted. When the bird was placed on a cake of ice it revived, and became active. This observation extends the known range of this species, southward into Central America."

Puffinus tenuirostris in Japan.—The Hand-List of the Japanese Birds, 1932, states that this species has been taken in Sakhalin, Kuriles, Tsugaru Strait, Hondo, Bonin Islands, Kiusiu, Korea. By the Catalogue of the Birds in the British Museum, Vol. XXV., p. 388, 1896. ♀ ad. sk. Nagasaki, Japan, May, 1876; and ♂ ad. sk. Peel Island Bonin Islands, May 15, 1890.

Breeding in South Australia. Description by Dr. A. M. Morgan. "South Australian Ornithologist," Vol. II., p. 143, 1916:— "There is a great rookery of these birds on top of the big Althorpe (Island). Every available piece of ground is burrowed right up to the lighthouse and the keepers' cottages, and many of the birds are compelled, for want of room, to lay under the bushes. The acting keeper (Mr. McLean) told us that his wife and children easily collected 16 dozen eggs from under bushes in the neighbourhood of their cottage. We noticed that some of the birds had burrowed beneath the sleepers of the tram-line used to bring stores from the cliff top to the lighthouse, and we were told that last year a bird laid an egg on the top of the big pulley wheel of the 'flying fox.' The birds of this 'rookery' are scarcely disturbed at all, as the lightkeepers do not use either the eggs or the young for food, so this island should be a haven for them for many years to come. All the birds at the time of our visit (3rd January, 1916) were sitting on heavily incubated birds. Soft parts—iris, dark brown; legs and feet, black. The nails are very sharp, as we found by experience when getting them out of their burrows. Temperatures (all sitting birds) No. 1, 103.2 degrees; No. 2, 101.2 degrees; No. 3, 100 degrees; No. 4, 101 degrees."

Dr. Morgan informs me that at Lorne, in Victoria, in the middle of October, 1905, Mutton-Birds (*Puffinus tenuirostris*) were passing Lorne south-westerly from 7.30 a.m. to sundown, and flying in a continuous stream, thousands upon thousands of birds, probably millions. A few came in and settled in Lorne Bay; as a rule they rode the swell, but when a breaker threatened

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they dived through it. He also says that he has seen birds of the species rise from the sea in a calm with very little effort.

Visit to Cape Wollamai, Phillip Island, Victoria. By J. Sutton. My only experience of this species was at the "rookery" at the above Cape on 19th April, 1923. The party consisted of Mr. Lewis (Chief Inspector of Fisheries), Dr. Casey A. Wood, Mr. Z. Gray, and myself. We reached Cape Wollamai, via Cowes, at 3.25 p.m. After walking over about six acres of the rookery, which covers 320 acres in all, we left at 5.35 p.m. for Cowes. Over 50 dead birds were seen about this part of the rookery in various stages of decomposition. They were mostly young birds. We were told that at this date the young have been deserted by their parents and were living on their own fat and stomach contents. They came out of the burrows at night and were killed by foxes, which had developed on this island the practice of blood-sucking. In only two cases were the birds partly eaten, one about the head and the other about the head and breast, but that might not have been done by foxes. The fox generally appeared to kill the bird on the side of the neck, and in some cases we had to examine the body to find the place of attack. Two young birds were pulled out of their burrows with the aid of a bent piece of fencing-wire. The first one on being held up about waist high promptly vomited up its stomach contents—a quantity of highly-smelling reddish oily liquid—which bespattered most of the front of one of our party who was dressed in white flannel! This bird could scrape along the ground with difficulty. Whilst it was being pulled out of the burrow it emitted noises like a small pig—a kind of grunt and squeal. The two burrows seemed about four feet deep, but as none of the tunnels looked at was straight, the bottoms, or contents, could not be seen. The surface was sandy, but just beneath the surface the sand had consolidated and was harder. On the top of the entrance to the tunnels the marks of the claws of the birds could be seen.

In Victoria the eggs are allowed to be collected for a period and later the young may be taken. (In Tasmania young only may be taken). The area of all the rookeries on Phillip Island is about 620 acres. The men of the Fisheries Department have been banding some of the Mutton-Birds during the past three years (excepting 1922) in an endeavour to find out whether the bird laid a second egg after the first was taken. We were told that they have found that the birds did not lay a second egg, but that some have returned to breed in the same burrows each

year. The taking of young birds for food is allowed from 20th April, and it was said that within a fortnight the young birds would leave the burrows for the sea. The two living young birds we saw seemed to be not so black upon the head and back as the adult, and were a lighter grey underneath. The throats of the young birds were white, in the adults grey.

(I must add that these points do not appear to be an infallible guide. A specimen in the S.A. Museum, taken at Twenty Day Island, Tasmania, on 29th September, 1909, has as white a throat as any of the young birds. A young bird obtained at Glenelg on 1st May, 1927, is blacker on the head and back than any adult specimen in the collection.)

The genus *Puffinus*.—Two other species have been recorded from South Australia—*Puffinus gavia*, Fluttering Shearwater, and *Puffinus carneipes*, Fleshy-footed Shearwater. A specimen of the latter was taken by Captain S. A. White in St. Vincent's Gulf on 13th February, 1917. In its stomach were 32 beaks of Cephalopods.
