

At the laying period the bird is exceedingly timid, and if the nest contains eggs and the bird be watched it will not go near the locality unless the eggs are nearly incubated, and then she is loth to leave them; but I have not yet seen a bird enter or leave a nest. If the nest be touched before an egg is laid, or the birds watched too closely when building, they often desert it and commence operations elsewhere. This they did on three different occasions this year. Incubation takes about 15 or 16 days, and the young leave the nest when three weeks old, at which stage they are almost as agile as the parents. The plumage, too, is identical, but the gape is more yellow in the fledgling.

The breeding season apparently extends over five months—from October to February inclusive—and two broods are reared. The first nest noticed this season was on 17th November, 1906, and on 10th February, 1907, two nests, both containing eggs, were noticed. The eggs of one had been broken only a few hours before, and undoubtedly the blame was again attributable to a bush-rat. The *Pycnoptilus* has no doubt many enemies, among them being the pest just mentioned and that imported curse, the fox. The remains of a Pilot-Bird were found by one of the party littered about the nest, and close handy I found the beautiful bronze feathers of a Pigeon scattered about the scrub. The *Pycnoptilus* is also a foster-parent to the egg of *Cacomantis flabelliformis* (Fantailed-Cuckoo).* On the other hand, the nest is so well hidden, the bird is such a recluse, and the country that it inhabits so dense, that it generally has ample warning of its enemies' approach. All things considered, I do not think there is any immediate fear of its numbers being greatly diminished. But settlement is going on, and the gullies are being cleared so rapidly that shortly only in the mountain fastnesses will its glorious song be heard in thanksgiving to its Maker above—the Almighty.

A Rookery of Storm-Petrels.

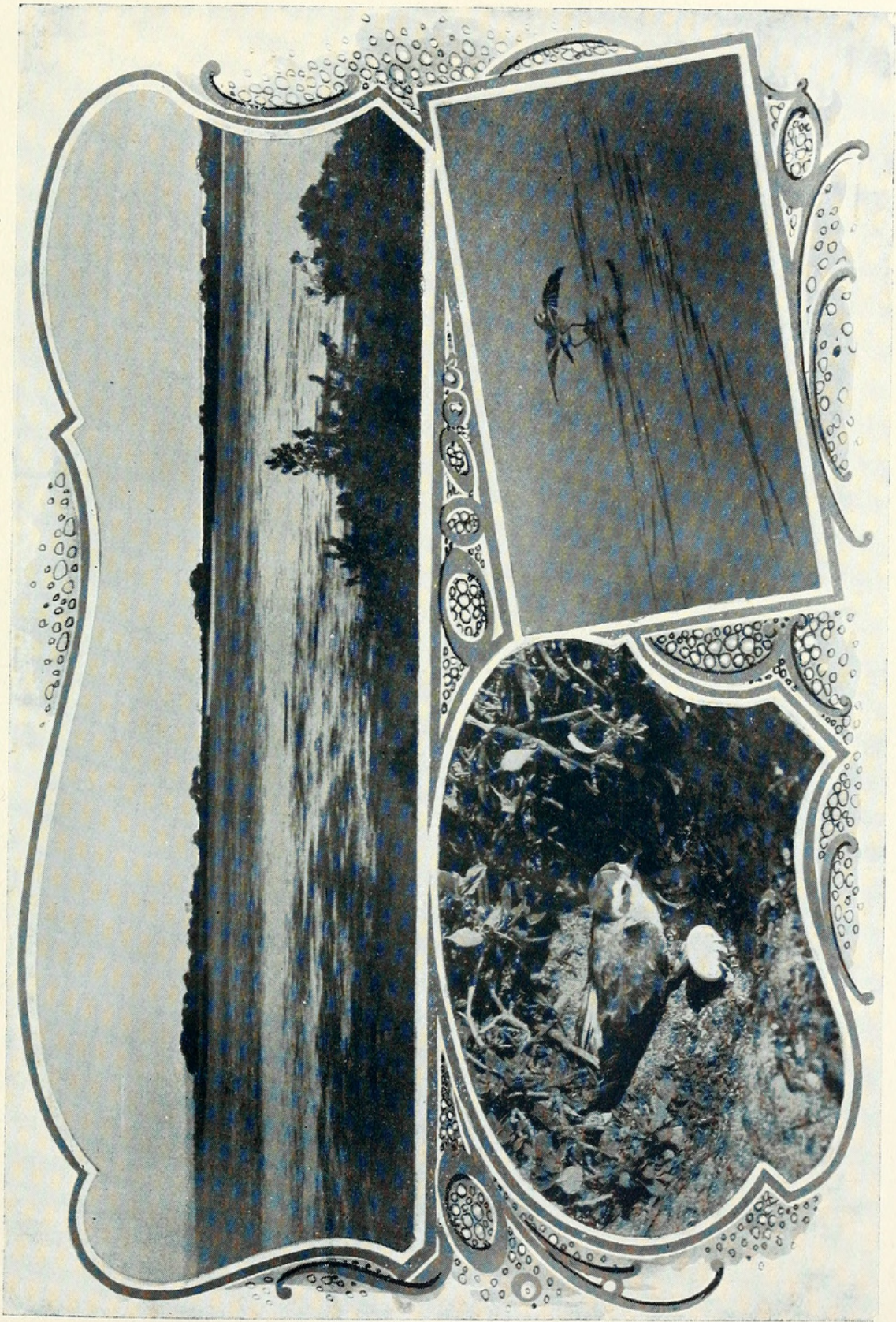
BY A. G. CAMPBELL AND A. H. E. MATTINGLEY.

OPPOSITE the entrance of Port Phillip Bay, and some 4 miles in from the actual Heads, lies a long, narrow strip of land known as Mud Island. The name is somewhat of a misnomer, for the island consists mainly of sand. The island, which is perhaps 3 miles around, stands sentinel over the entrance to the harbour of Melbourne, arresting the onrush of sand that would block the opening, piling it up in the shallows and in the banks that form its flanks. Mud Island is unique in being one of the few spots on the south coast of Australia where a species of

* *Emu*, vol. vi., p. 131.

Storm-Petrel (*Pelagodroma marina*) comes to breed. Through the kindness of Mr. S. P. Townsend, A.O.U., and in company with him and two friends, I was enabled to visit this rookery during the last week of the old year.

We took a walk round the island on the evening of our arrival; for, after a long and boisterous trip from the Melbourne side, our yacht gained its shelter only an hour or two before sunset. As we passed along the strand a Ternlet (*Sterna nereis*), one of the daintiest of sea birds, with silver livery and black cap, rose from the shingle, but its nest, or at least its dappled-brown eggs, for it makes no nest, could not be discovered, so well were they identified with their surroundings. Its complaining cries attracted its mate, and the pair circled about as daintily as the Swallows, from which this family of birds takes its popular name of Sea-Swallows. Stranger bird noises were heard ahead of us, sonorous croaks and piping trills. The Ternlets by their cries had alarmed some wading birds, which could be seen standing about, singly or in groups according to species, silhouetted against the setting sun. The guttural noise of the Black Swan was identified, and three birds, about the size of Plover, as they wheeled to our rear, showed themselves, by their white-barred wings, to be Turnstones. Passing round to the south of the island we had to cross the neck of a marsh or lagoon. The water was running out, but at high tide it is evidently covered by a large sheet a few inches in depth. In the mud and ooze of its surface the wading birds find abundant food. What a collection was there! Such a place, where land and sea meet, is the rendezvous of birds of many climes. The great order of Waders is always well represented. Before us were flocks of long-legged and long-winged Godwits from Kamtchatka, a few Whimbrel, and a solitary Sea Curlew, which, with its curved 8-inch bill, was probing for crabs and other tit-bits. They nest, we are told by Seebohm, within the Arctic Circle, and when their young are full grown, by about August, when the long northern winter is coming on, they all leave on a southern tour, the majority arriving here in the month of September. Their life is a perpetual summer, for they leave again before our winter returns, and reach their northern haunts in time to revel in the Arctic spring, with its abundant food supply of berries, insects, and molluscs. What a journey for such quaint birds—20,000 miles every year. But the wonder of it is only intensified on seeing flocks of Stints of three kinds (Sharp-tailed, Curlew, and Little), which, though not much larger than Sparrows, have also come from the Arctic tundras. Size is no bar, apparently. The provision for it all is found in the long-pointed wings, the long and abundant secondary feathers, giving an increased wing surface, and the broad chest, where the pectoral muscles can be well fixed for extended flight. Theirs is a long day and a long



Mud or Cygnet Island, Port Phillip.
(1.) Sea Marsh. (2.) White-faced Storm-Petrel (*Pelagodroma marina*) and Egg (exposed). (3.) Off to sea.

FROM PHOTOS. BY A. G. CAMPBELL AND A. H. E. MATTINGLEY.

life. Just when we saw them they were taking their fill of the prolific life of the marsh. Soon they will begin to put on fat to help them on their March journey north. Among these wading birds stalked solitary Gulls, both the large Pacific and the small Silver species, scavenging the marsh banks of sea offal, and ever on the look-out to rob some of the tinier birds of their heads. On the bank beyond, preening their feathers for their evening flight to Western Port, were a dozen or two Black Swans. They passed over our camp later in the evening, flying V-shaped across the bay, and they returned just after daylight next morning. The marsh has other interests also. It points out how the island has been growing in size. Between the sandbanks mud is deposited by the high tides, and when the marsh has gathered enough of this sediment to encourage salt-loving plants to grow thereon, it will rise from the water and become dry land. The samphire moor, touched with all the greens of spring, yet mellowed with the browns and purples of autumn, looks a veritable garden of heathy bushes, but at closer quarters it is seen to mark a further stage in the raised mudbanks. Tracks of Land Rails were here observed, and later a little jet-black chick, which must have lost its mother, was picked up dead. Grass-Birds and White-eyes also inhabit the samphire.

Passing over to some of the sandbanks, we came across what was the real object of our summer visit—the Petrel rookery. Little burrows, just large enough to put one's hand in, each with a little heap of sand outside, were seen, among native spinach and saltbush, sometimes so thickly that every square yard held one of them. Inserting the hand we could reach to the end, where a large chamber was found and a White-faced Storm-Petrel sat quietly upon its egg. There was not a sound save our own voices, yet there must have been thousands of birds within earshot. Each was intent upon its task of incubation, now very near completion, for most of the eggs we examined were already chipping, and in three burrows we discovered a tiny, fluffy, grey chick. When brought out to the light the Petrel, which is about 8 inches long, seemed very stupid, and scrambled away on being released. On the wing, however, it is the perfection of ease and grace. All writers of the sea have made mention of Storm-Petrels. Known to sailors as "Mother Carey's Chickens," they have been credited with bearing, by their cries at certain times, the tidings of a coming storm. But whether that be true or no, it is none the less wonderful that such tiny birds should be able to weather out the storms of the sea and spend all their life upon the wide waste of the ocean, only coming to shore during the months of December and January to rear their offspring.

As it was now far past sunset, and the Christmas moon

was shining brightly, we decided to await the arrival of the other batch of birds, the mates of those sitting quietly in the burrows. Very little has been written about this species of Storm-Petrel, so it was with eager interest that we awaited the progress of events. We had been on far-off islands when the Mutton-Birds (*Puffinus tenuirostris*), a larger species of Petrel, returned about this time of evening in thousands and tens of thousands to feed their mates, and we had witnessed the scuttling to and fro, and the fighting as birds got into wrong burrows, and had had our ears filled with the din of wranglings, croakings, and croonings that lasted till almost daylight; and we naturally expected somewhat similar performances. We marked ten birds in the burrows, to see if this could give any clue to their habits. The same musty smell that pervades the Mutton-Bird rookery, arising from the natural oil with which the birds' plumage is greased, was noticed here, and it soon permeated our blankets and clothes. It was at 9.30 p.m. that the first Storm-Petrel came in from sea, and circled swiftly and silently close to the ground, as if searching for its own particular burrow. What a problem, especially if the night be dark, to find one's own home amid such tens of thousands of a similar nature! Bird followed bird every few minutes in silence, until about 10.30 the numbers had increased so that two or three could be seen at once. But where were the numbers scuttling about the ground and cutting the air in all directions amid noisy arguments and welcomes? Two hours later, still no great increase—ones and twos still passed our vantage point, flashing their white under surfaces as they occasionally turned in the moonlight, but none settling within sight, though the night was clear and bright. Not a sound until we beat or stamped upon the ground, when an impatient or hungry bird near by would call from a burrow with a low, rasping voice as untuneful as all sea-birds' notes are.

We estimated that at the very least there must be 50,000 nesting burrows in the sand rises about us, and we were forced to the conclusion that all the birds cannot return every night. It appears as if some only, and that a very small proportion, return to change places with the brooding mate. Search as we would, in the small hours of that moonlit morning, we could only find one burrow where two birds were at home. We then snatched an hour's sleep under the friendly shelter of a salt-bush, and about 3.30 a.m. were awakened by two Storm-Petrels, with low cries, running on to us from behind and taking wing. This illustrates the habit Petrels have of running on to a mound, or throwing themselves from a cliff, before taking flight. Their long wings prevent them rising easily from flat ground. By daylight not a bird was to be seen. We visited our marked burrows soon afterwards, and of ten birds which were each

labelled with a small piece of twine seven were still at home, two had changed shifts, and one burrow was empty. This corroborated somewhat our opinion that a small proportion only of the birds belonging to the rookery come in each night. The sitting bird must therefore be four or five days without food. We felt we had only touched the fringe of these interesting questions, and that a longer stay on the island was necessary for their solution. But we had not the time to spare; we must be off.

While returning to our boat we got a hint of the reason the Petrels nest in burrows and not on the surface of the ground. A large Harrier was beating up and down the rookery in search of late birds, and in a clump of saltbush we disturbed another Hawk from the remains of his early morning meal—a fat little Petrel.

Not long since a manure manufacturer leased Mud Island, and proceeded to dig up and ship away the surface sand of these Petrel rookeries, to utilise the bird remains and lime contained therein. But, thanks to the vigilance of the authorities, at the instigation of Mr. S. P. Townsend, this was stopped, and the rookeries have now been reserved. In days to come it is to be hoped that they will be looked upon as one of the curious and rare sights adjacent to the first city in the Southern Hemisphere.—A. G. C.

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Further visits to the Petrelry were undertaken on the 16th and 17th February, and again on the 23rd and 24th February, 1907, to extend and make more complete our observations on the breeding habits of "Mother Carey's Chickens." On the former occasion so fierce was the gale that the fishermen in their 6-ton craft were doubtful of starting. However, we reached calmer water near the island in half an hour's time. After wading knee-deep in mud, a landing on a sandy beach, covered with many varieties of shells, was effected. What a vast congregation of birds met the eye! Driven in from their feeding grounds on the vast areas of mud flats about the island, which were now storm-swept, were thousands of Barred-rumped Godwits, Little Stints, Lesser Golden Plover, and Sharp-tailed Stints, whose combined flocks, when disturbed, simply darkened the sky in one direction. A flock of about 250 Black Swan were seen feeding on the plants, chiefly *Halophila*, on the mud-banks in the water. Ever and anon one would plunge its long, graceful neck beneath the surface to pluck the grass-like growth from the sea-floor. Regarding these graceful birds the Rev. Robert Knopwood, H.M. ship *Calcutta*, and chaplain of the convict settlement at Sorrento, 5 miles distant, under Lieut. Collins, writes:—"Tuesday, 11th October, 1803, wind S.S.E.,

a.m. The party and self went on shore to the island in the middle of the bay, now called Cygnet (Mud) Island, where we saw a great number of Black Swan. I was the first that killed one on the island. We killed three and caught many alive, and caught many Pelicans and sea-birds. Captain W. and the Governor, with Mr. Tuckey, went on the west side of the bay to procure water. Could not find any. On the day before, the 10th October, John Skilthorne, a free settler, died, the first death of a white man in Victoria." To the Rev. R. Knopwood, therefore, belongs the credit of being the first "bird observer" on Mud Island, and from his account the Black Swans should have been nesting there for them to have caught so many alive. It is unlikely that moulting birds would be found at that place—besides, the island was then called "Cygnet" Island.

Wading across the lagoon the southern rookery was reached, and examination of the White-faced Storm-Petrels' burrows revealed young birds in several stages of development. There were tiny fat little fluffy balls of slaty-grey down from out of which peeped a pair of beady black eyes situated behind a slender black bill which was surmounted by the long tube nostrils peculiar to the Petrel family. Most nestlings were to be found more advanced, however. In many the abdomen had become covered with white feathers interspersed with down, the tail was beginning to show, and the primary wing feathers were prominent. It was noticed, too, that the white abdominal feathers had extended up to and over the pectoral muscles, whilst the markings from which the bird derives its vernacular name were showing up strongly through a few threads of down. In the next stage of growth the whole of the feathers were more strongly developed. The down, which freely covered the wings, back, flanks, nape, and crown in the previous stage, had almost disappeared, whilst the general contour of the burrowing resembled that of its parents, although it was still very fat. These birds had just been deserted by their parents and left to their own devices. Whilst lying out in the rookery at night some fully fledged birds were observed running and flapping about the rookery, stimulated by the pangs of hunger. It is owing to this that they gain sufficient muscular development both in the legs and in the wings to enable them in about a week's time to fly away one night with the adult birds, who no doubt assist and encourage them. At sea they use the feet almost as much as their wings, as they go tripping along over the billows (*vide* Plate XVII.) It is owing to this last-named fact that the members of the family to which they belong have been called Petrels, after the apostle Peter.

Up to the final stage the parents feed their offspring nightly with about a teaspoonful of fishy, oily paste, principally com-

posed of "whale's food," a small species of crustacean found floating on the surface of the ocean. This they regurgitate, and when they enter their burrows a faint purring note of welcome is made by the nestling, evidently in anticipation of its evening meal. Opening its mouth wide over the head of its young one, which forthwith thrusts its beak into that of the adult and opens it, the parent bird brings up the dainty and juicy contents of its stomach. With this meal the young one has to be content until next night, but as it lives an indolent life, quietly ensconced in the cool shade of its burrow, it waxes exceeding fat, so much so that in some parts of the South Sea Islands, where these birds also nest, the natives, passing a dry rush through a dead young one's body, form thereby an excellent candle.

Lying out, wet and cold, and with eyes filled with sand which was being whirled about by the gale, observations of the home-coming of these fragile ocean wanderers was anything but pleasant. About 8.30 p.m. the first bird arrived, and not until 9.10 p.m. did the next one put in an appearance. They flickered over the rookery for a few seconds to pick up their bearings, then noiselessly descended to the mouth of their burrow, sometimes having to clear away the sand which had blown into the mouth. Having fed the young one and caressed it, they depart, probably carrying away in their bills the excrement in the burrow, the time spent in the burrow being between 7 and 10 minutes.

Two enemies of the White-faced Storm-Petrel are found on the island—the Harrier, and, worse still, the common rat, introduced by the guano-getters. If these rodents are not exterminated, it is only a matter of time when they will destroy the occupants of the rookery, since several freshly killed remnants of these fragile birds were found about. On visiting the rookery again on the 23rd and 24th February, it was noticed that a large proportion of the Godwits, Stints, Lesser Golden Plover, and Curlew had departed, presumably on their northern pilgrimage to breed. A fair proportion of the Storm-Petrels that had reached the adult stage had also departed. Mr. Joseph Gabriel informs me that some years ago many of the White-faced Storm-Petrels, and also the Mutton-Birds, did not nest; they were found dying in thousands along the shore. This was attributed to the scarcity of "whales' food," which is the principal diet of these sea-roaming birds. It has been reported (see *Emu*, vol. ii., page 129) that when "whales' food" is abundant the Mutton-Bird has been seen in hundreds of thousands feeding upon it, the birds covering the surface of the water for miles and miles.

The following is a list of birds noticed about the island. Reference should also be made to a list published by Mr. S. P. Townsend in the *Victorian Naturalist*, vol. xix., p. 166 :—

Circus gouldii
Megalurus gramineus
Ephthianura albifrons
Zosterops caerulescens
Anthus australis
Hypotaenidia philippinensis
Hirundo neoxena
Micropus pacificus
Notophox novæ-hollandiæ
 „ *pacifica*
Pelicanus conspicillatus
Ægialitis ruficapilla
Lobivanellus lobatus
Charadrius dominicus
Hæmatopus longirostris
Limosa novæ-zealandiæ
Numenius cyanopus
Arenaria interpres
Limonites ruficollis
Heteropygia acuminata
Ancylochilus subarquatus

Tringa canutus
Thalassogeron cautus
Pelagodroma marina
Stercorarius crepidatus
Gabianus pacificus
Larus novæ-hollandiæ
Sterna bergii
 „ *nereis*
Sula serratator
Chenopsis atrata
Biziura lobata
Anas superciliosa
Nettion castaneum
Phalacrocorax carbo
 „ *hypoleucus*
Podiceps poliocephalus
 „ *cristatus*
Eudyptula minor
 And the introduced Starling
 and Sparrow.

A. H. E. M.

Stray Feathers.

A TRIO OF BANK-BUILDERS.—Last December I found in holes in the bank of the Talbragar River, Cobborah, N.S.W., the nest of a Sacred Kingfisher, that of an Owlet Nightjar, and that of a Red-tipped Pardalote, all within a space of about 20 yards.—THOS. P. AUSTIN. Cobborah, 30/1/07.

* * *

NEW FOSTER-PARENT FOR FAN-TAILED CUCKOO.—I have to report the taking of an egg of *Cacomantis flabelliformis* in the nest of and accompanied by two eggs of *Meliornis australasiana* (Crescent Honey-eater) at Ringwood, Victoria, on 21st October, 1906. Incubation well advanced.—F. E. HOWE. Melbourne, 11/2/07.

* * *

MACKAY (QUEENSLAND) NOTES.—I have taken several sets of the Brown-breasted Fly-eater's (*Pseudogerygone brunneipectus*) eggs this season. On three occasions the nest contained an egg of the Bronze-Cuckoo (*Chalcococcyx plagosus*). Each pair of *P. brunneipectus* eggs varied a good deal, one egg in each set being of a much darker flesh-pink than the other.

Under date 8th January my notebook contains this note, which may be of interest :—"Noted a White-bellied Sea-Eagle in immature plumage (all brown) flying over the house. It was chased by two Crows and a smaller bird (species not dis-



Campbell, Archibald George and Mattingley, Arthur Herbert Evelyn. 1907. "A Rookery of Storm-Petrels." *The Emu : official organ of the Australasian Ornithologists' Union* 6(4), 185–192. <https://doi.org/10.1071/mu906185>.

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