

OUR ANCESTORS LIVED IN THE SEA

BY PROFESSOR WILHELM BOELSCHKE



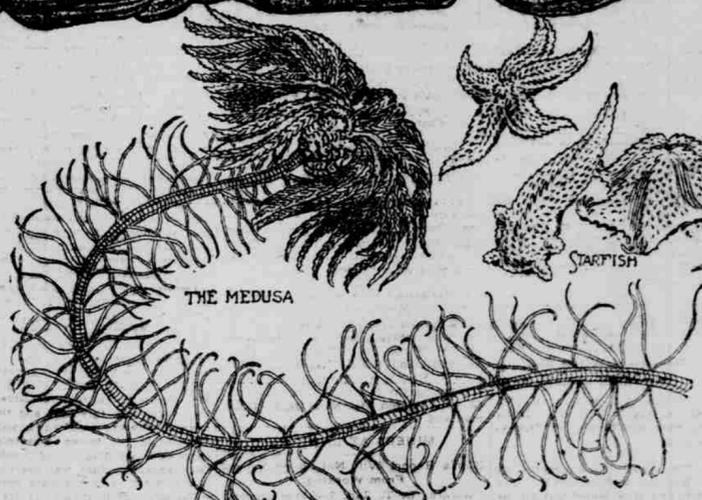
THE BLACK SWAN



THE DUCKBILL



THE GIANT KANGAROO



THE MEDUSA

STARFISH

BY PROF. WILHELM BOELSCHKE. (Copyright, 1904, by T. C. McClure.)

In the fables and legends of the peoples there sounds and resounds a steadily recurring strain—the "motive" of the water, from which all sorts of good things came to man.

In the blue past, when all things still swarm in mist, wise fish-folk arose out of the deep in the Orient and taught brave truths, which still remain partly unobeyed by evil humanity. Kind heroes came to the cultured nations of Central America over the sea. Kind heroes sailed over the ocean to the nations in North America, dragged them from the morasses of barbarism, and behaved themselves much more respectably than was the case later with the real visitors from the East, the Spaniards. Shipwrecked men found wise nymphs on lonely islands, who gave them ambrosia to eat and solved for them the riddles of the future.

For us also there arises many a truth out of the waters. Especially so the more we advance on the things of the world as naturalists.

The waves, which fawn at our feet on the strand, and throws shells, snails and sea stars in our path, ever and again, now here, now there, drags in a good building-stone that helps to build further on the proud structure of unfettered world and nature study. To the toll that gnaws rocks in order to deposit fine mud there, later to harden itself again to rock, we owe almost our entire knowledge of the long-gone life of the world, because animal and plant remains have been preserved in this mud that turned to stone. And, conversely, we would hardly understand these remnants of a past that lies thousands of millions of years behind us, if the animal and plant world in fresh and salt waters today did not give us the richest of material for direct recognition of past forms.

OUR OCEAN CRADLE.
In the water there was, perhaps, the cradle of life. There surely it first reached development and attained certain first and great goals of evolution, and in it today there grow and flourish a mass of the strangest, most instructive animal forms—among them many survivors of the older forms that we seek in past epochs, and in whom we seek the ancestors of the animals of today.

With truth has it been said that the whole science of zoology and biology of the past sixty years is in "the sign of the water." Within a short time ocean lights and fresh water seas, true "obser-

atories of the water," as somebody calls them in jest; only they hunt for fixed stars and comets, but for sea-stars and other representatives of the animal circle of the prickly-skinned, that are without a representative on the land; or they hunt for those apple-bird stars of the mid-night sea, the medusas and sea mantles, that produce the magnificent enchantment of the glowing of the deep.

Man has forced himself with cunning apparatus into the chasms of the ocean holes, where, in ever stormless water, the sea lilies (most dainty animals and not lilies at all) wave their tender stems; where crabs, some entirely blind, some with eyes colossal, teem in darkness that is illuminated only when a lamp-fish darts along wrapped in phantasmal emerald glows.

But now that this is all under way, the appetite grows naturally with the eating. How many lowlands of far regions may hide the most wonderful material for botanical, zoological, Darwinistic study?

That expedition of the Challenger has already led us to the Southern Hemisphere of the earth.

THE "PROMISED LAND."
And there lies the "Promised Land" of all longing seekers after nature's secrets—Australia.

Since July, 31, 1770, when Cook and his men scoured up a troop of giant kangaroos on the east coast of the Australian mainland, then discovered for the first time,

Australia has maintained its reputation as a zoological wonderland.

There was the black swan, which still is the symbol of a world topsy-turvy to the layman, although not particularly remarkable to the naturalist. And there came the story of the duck-bill, whose dried pelt appeared such a mad thing—a mammal with the shape of, say, the beaver and with a regular duck's bill in its head—that they who received it suspected that it was an elaborate practical joke.

At last, when the world had accepted the fact that the animal was "genuine" there came the report that it lays eggs, contrary to the honorable practice of mammals.

Circumstantial evidence was produced to the effect that the egg-laying story at least was not true, and scientists

breathed freely again, believing that they had sayed something at any rate out of the world of paradoxes.

For a little while they warred each other again, too ready a credence in this curious field. The aboriginals reported terrible monsters in the impenetrable interior of the little continent, for example, a colossal black lizard. The aboriginals evidently were humbugging.

But then, in 1822, Richard Owen, the excellent English authority on the remains of extinct animals, by chance bought a large bone that came from Australian territory, the island of New Zealand. The anatomist recognized it as the bone of a gigantic bird having relationship with the ostriches. It was determined then that such gigantic birds had not so long before, although they are extinct today. And these birds opened

the way to an entire series of similar ones on the Australian mainland. Then were found the skeletons of Vertebrate monsters, all of which lived there, amongst animals to whose family the kangaroo belongs, but fully as large as lions and even rhinoceroses.

EGG-LAYING BEASTS.
After men had become accustomed to this new knowledge, the duck-bill appeared again in the foreground. There remained nothing, after all, but to acknowledge that it really did lay eggs, and therefore was, in that respect as in the others, not a most wonderful Darwinistic link between the mammals and the reptiles.

In the meantime the list of "impossible" yet "real" Australian animals had been increased with the lizard Hylaxia of New Zealand, not a black grant, it is true,

but combining so remarkably the typical form of lizard of today with the form of long extinct saurians that at last we had to create for its benefit an entirely new order of the reptiles, quite distinct from lizards, snakes, crocodiles and turtles.

Everywhere else, the deeper we peered, we saw more wonders, be we skeptic as we might. Cuckoos ran along the ground like pheasants and birds laid their eggs in enormous hill mounds of wet leaves and left them there to be quickened by the heat engendered by fermentation as in an artificial oven. In nesting time the lower bird built himself true marriage towers of branches and decorated them with ready blossoms, shells, bones and all kinds of dainty knick-knacks in a manner really aesthetic.

On the related island of New Zealand, where the mammals seemed to be wanting altogether and the birds to be developed the more grotesquely, one parrot lived entirely in the manner of the owl, a second attached outside on the pasture with saw-toothed beak like a bird of prey, and in the forest-trees these moved in the gloom a family of the ostrich birds—the kiwis, most of them not much larger than eggs, and so subtly striking in comparison with the same island's widely not ostriches, now extinct which were larger than our largest African ostrich. So Australia was and remained the land of zoological wonders.

THE LAND OF LINK-UP.
To the thinking observer there appeared in it at least a great proportion of those

marvels a distinct thread to determined direction, which gave them all something in common. Australia was the land of the link-forms, the forms which linked great groups to each other.

In common practice we distinguish between two chief classes of the vertebrates: the fish, the amphibia (frogs, salamanders and others), the reptiles, lizards and others, the birds and the mammals. If Darwin's teaching is correct, we must assume that all stand in a certain evolutionary relationship to each other and present more or less distinctly connecting links. The fish must be descended from very low animals, which are not even vertebrates, and in fact we know a fairly good evolutionary form, the so-called lancelet fish or amphioxus. It lives at present near many coasts, and also near the Australian strands as a specific, almost distinct, species, known as *amphioxus*.

As we approach the top the fish must show, according to Darwin, evolution toward the amphibia, the amphibia toward the reptiles and the reptiles toward the ancestral tree split itself, so it is believed on the one side toward the birds, on the other toward the mammals.

Without doubt that famous lizard Hylaxia, which belongs absolutely and entirely to Australian domain, is the ancestor of all living animals to the link between the amphibian and the reptile.

The link between the reptile and the mammal is represented with at least partial distinctness, by the duck-bill, which also belongs exclusively to Australia and its islands. And Australia, almost alone of all lands, again gives up the next evolutionary group leading within the mammalian family from the duck-bill to the higher mammals. Fossil animals, ostriches, kangaroos, and others.

The evolution from the reptile to the bird is not so simple, that is, not for Australia. The single most and kind ostriches there certainly are remarkable, and even very ancient forms of birds. But they are genuine primitive birds, leading back directly to the birds. We know how such a genuine bird-bird should appear from the German Jurassic formations. We have two specimens of the so-called Archaeopteryx, and that is unquestionably an animal exactly between lizard and bird—an animal, to be sure, that does not exist now, but disappeared from the world in that form probably millions of years ago.

A NEW ZEALAND DIMENSION.
It was a pet thought of old Darwin that

Continued on Twelfth Page.

FREE--Ticket to World's Fair At St. Louis--FREE

A Special Offer Commenced January 9th, 1904

ONE FIRST CLASS ROUND TRIP TICKET, with guide book attached, to the World's Fair at St. Louis, over any road from Wichita. You will not be restricted; can go at any time, morning, noon or midnight flyer. We have concluded to make you this special offer, commencing January 9th, 1904, and continuing through and up to the last day of the World's Fair. The first ticket will be ready for you at the opening of the Fair, or any time you wish to go during the thirty days following. The second ticket sixty days after opening, and so on.

Now, Listen! Buy a Buggy or Vehicle of any make in the repository from fifty dollars up and this entitles you to a coupon, which will be numbered. We retain the exact number opposite your name and address. At the end of the month, or the time previously mentioned, the ticket or number will be put in a box and drawn out by a little girl or boy, blindfolded, and the fifth ticket gets you a free ride to St. Louis to the great World's Fair.

Stop at 300 and 302 East Douglas avenue and we will give you a thorough explanation of the great event.

- Columbus Buggy Co., Columbus, Ohio
- Babcock Carriage Co., Watertown, N. Y.
- Hassett & Hodges, Amesbury, Mass.



Now, in giving away so much you may think we would be compelled to raise the price on our vehicles. Do not believe it. We will not change the price on any rig in our repository; would rather make a reduction than raise the price. We buy right, pay cash and can afford to do it. The largest stock in the city; new styles arriving every week. You are well aware we handle the best makes; leave it to you.

- Henny Buggy Co., Freeport, Ill.
- Racine Carriage Co., Racine, Wis.
- Anderson Carriage Co., Detroit, Mich.
- Bleese Carriage Co., Macon, Mo.

We know you have heard of these makes for years. We will be delighted to show you through our repository at 300-302 East Douglas avenue. Respectfully,

F. G. SMYTH & SONS J. M. BYRNE SALESMAN