

CHAPTER XIV

FRED RANSOM DESCRIBES THE REEF AND KEYS, IN ORDER THAT THE READER MAY MORE FULLY ENJOY THE ADVENTURES WHICH ARE TO FOLLOW, AND ALSO ACQUIRE SOME KNOWLEDGE WELL WORTH OBTAINING.



SI draw near those scenes in which I was destined to spend several months, it would be well, for the sake of the better understanding of what is to follow, and for that of general information, if the reader will fancy himself aboard of the *Flying Cloud*, as she sails along the Keys, and, meanwhile, learn something about the present formation of the Reef,—how it was made, and how the work still goes on under the charge of little builders, to whom the task was committed thousands and thousands of years ago by the Great Architect of the Universe.

In general terms, the Florida Reef includes

all the coral ledges and neighboring Keys: but to speak more precisely, the Florida Reef is one great ridge of coral, stretching continuously from a short distance north of Cape Florida, to several miles beyond Key West. This is the Reef proper, the Reef which must be distinguished as such; for it is the only thing thereabouts really entitled to the name, for the reason that it is the only great coral bank lying under water. Except some patches of coral sand, not comprising more than a few square yards, it is entirely submerged, whereas, the Florida Keys form a long line of islands, covered with verdure, and many of them capable of cultivation.

Commencing at Virginia Key, the northernmost island of the Florida Keys, and just above Cape Florida (for the Cape is the southern end of Key Biscayne, the next Key to Virginia Key), the Reef, except the few patches mentioned, is a great submerged bank, which runs in a gradual curve to a point west of the Marquesas, where it stops abruptly, and forms, with the banks around the Marquesas, the main entrance to the Reef-Channel and to the Harbor of Key West. Commencing at the north again, the general trend of the Reef and Keys, for about sixty miles, is S. S. W.; then, for about one hundred and forty miles, W. S. W.; and

then, between thirty and forty miles, including the Tortugas, the rest of the line takes a direction about W. N. W. The line of the Reef and Keys curves so regularly, that it forms the segment of a circle with a diameter of about two hundred and forty miles.

Parallel to the great submerged coral bank, which I have said constitutes the Reef, and varying in distance from two to five miles from it, lie the Florida Keys, the appearance of which has been already described. The southernmost one is Sand Key, to which Captain Tuft took me on the fishing excursion from Key West. The westernmost ones are a group named the Tortugas, so called from the abundance of turtles found in the neighboring waters.*

The Reef is really the left bank of the straits of Florida, through which the Gulf Stream flows into the Atlantic. It also forms a natural breakwater for the Florida Keys, throughout their whole extent; for the top of the Reef, being only a few feet under water, protects the Keys from the violence of the waves, and although there often is surf on their beaches, it is of a very different character from that driven in from an open sea. Ordinarily, the

* The name formerly used for turtle was tortoise, and the word Tortugas is derived from the Spanish word for tortoise—tortuga.

water of the channel between the Keys and Reef is not more agitated than usual in the lower parts of bays.

All that we see here, and all that lies beyond, for miles and miles further than any distance which you can actually conceive, although you may know it to exist, is the work of little animals, a species of polyp, so minute and delicate, that before one constructs its rock castle, a little pinch between the finger and thumb would deprive it of existence. For thousands upon thousands of years, they have gone on untiringly constructing a great peninsula of a continent.

What the present Reef is, the Keys once were. They were a coral Reef, commencing to the northward, at the same point at which the present Reef begins, but extending further, and ending in the group of Keys called the Tortugas. Now, still counting from the eastward, we come to the densely wooded shore of the main-land of Florida. This consists of a line of hummocks, which are neither more nor less than an ancient line of Keys, situated on an ancient line of Reef. Back of this main-shore of low bluffs, and after penetrating the growth which covers a low strip of land called the Indian Hunting Grounds, we come to the first of seven parallel lines of hummocks that have

already been discovered. These are all known to be the successive lines that have in turn formed the Florida Reef. From Reefs, they became Keys, and from Keys, main-land. This is strange enough, but more wonders probably remain than those which have been revealed; for there is reason to suppose that the whole peninsula of Florida has been formed in the same manner.*

Between the present Reef and Keys, there is now a deep channel, but in the course of time, the Reef will complete its growth, and the channel between the present Reef and Keys will fill up by the same process which is now connecting the present Keys with the main-land, and which has already been completed between the shore bluffs and the lines of hummocks in the interior.

You may ask what the limit of this Reef extension is to be. The answer is very simple. The Reef-building polyyps cannot build in water exceeding fifteen fathoms in depth, and not far from the present Reef, the Gulf Stream rolls its almost unfathomable waters.

* For the fact as to the number of lines of ancient Reef discovered on the main-land of Florida, as well as for several other facts included in this chapter, I am indebted to Professor Agassiz's work entitled, "Methods of Study in Natural History."

Without doubt, in picturing to yourselves the corals, you have always imagined them to be either like those delicate red or roseate ones used for trinkets, or like those whose exquisite whiteness and antlered gracefulness render them conspicuous in parlor or cabinet. The corals, however, are of many colors, and of various kinds of entirely different structure.

The corals build Reefs only in tropical climates. The Reef is a wall of lime-stone formed by the animals from the lime which exists in a state of suspension in the salt water. These polyps have the power of assimilating the lime,—that is, the animals convert the lime to the purposes of their existence. Digestion, for instance, is the process of assimilating food, and although lime does not become the food of these polyps, but, on the contrary, their dwellings, yet in thus appropriating this substance to the purposes of their existence, they perform one of the acts called assimilation.

The direction of a line of Reef conforms to the shore off which it is situated. If the shore is straight or curved, so, also, in the same degree, will be the Reef. Sometimes, as in the Pacific, it has surrounded an island, which, by the sinking of the ocean bottom, has disappeared below the surface, while, at the same time, the Reef has grown until it reached

nearly to the surface, and then, gradually collecting a soil upon which a dense vegetation has sprung up, it has been transformed into a verdant ring of land surrounding a lake in mid-ocean.

Now that you have learned where the corals choose the sites for the construction of their homes, it is time for you to become acquainted with the mode in which they proceed. The foundations of a Reef are laid broadly and strongly by a kind of coral which constructs huge knobs of many feet in diameter. These, the sailors on the Reef, call "coral heads." The present Reef is about seventy feet in height, and the whole base of it is composed of "coral heads." When in the commencement of a Reef, these "heads" have multiplied and grown in height, until the water has become as shallow as six fathoms in depth, the condition of their prosperity, which requires a certain pressure of water, ceases, and with it ceases their further development. They give place to another kind of coral, which, in time, gives place to another, and another, until just below the surface of the sea, the top of a Reef is crowned and variegated with a delicate growth of fragile corals, corallines, sea-fans, &c.

The Reef is now finished, and forms a solid wall of lime-stone, abrupt on the seaward side,

and sloping gently landward. Now another process completes the sea-wall. The action of the waves on the Reef has detached great masses of coral, broken them into fragments, and ground them into sand. This sand, and materials composed of shells, decaying animal matter, timber and mud from the main-land, are gradually collected among the light corals on the summit of the Reef, until, at last, a tolerably secure soil begins to appear above the surface of the sea. On this, the waves soon wash up the same material that commenced to form the land, and it is rendered still more secure. Vegetation is now the only thing needed, and it comes by accident: that is, if aught can be accident that so resembles design.

The greatest resource which these spots have, is in the mangrove tree, with which nearly all the Keys are more or less covered. In the condition of little stalks with roots at the end, the mangrove seeds float in great numbers around the Reef and Keys, and are, of course, deposited wherever the waves carry them. No sooner do they obtain a foothold, than they begin to sprout rapidly, for salt water does not impede their growth. As they shoot up, they throw out numerous roots, not only below, but above, so that the stem is

surrounded by a gnarled, fantastic enclosure, over which it is difficult to clamber. In this uncouth basket-work, which looks like a nightmare of rustic arbor furniture, all sorts of materials collect, and the permanence of the new-born Key is tolerably well assured.

We now come to the process by which a Reef becomes, first, the shore of the main-land, and, afterwards, hummocks in the interior. While the Reef is being built, the channel between the Keys (or former Reef) and the main-land has been gradually filling up with mud-flats, and by the time the Reef is completed, and another one commenced outside (for the latter does not commence until the other is finished), the channel between the Reef and Keys begins to fill up, while that between the Keys and main-land will have closed, thus making the Keys part of the main-land.

You do not, of course, imagine that, while I was sailing along the Reef, I gleaned all the information which I have imparted. All I saw was, on one hand, a long stretch of green islands, and on the other, the great ocean, with the surf dashing, in places, on the intervening Reef. What I have told you was learned where most information is gained—from books. Then, too, my life on the coast, during the

following months, made me very familiar with that region.

Now you will more readily comprehend, and therefore more fully enjoy the adventures to be **narrated.**