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SARASOTA BAY.—We were informed that at Hunter's Point, near the northern end of the Bay, we would find a coral rock or formation skirting the shore; I was naturally anxious to determine the accuracy of the statement, inasmuch as no reef formation had been reported from the region so far to the north. The rock in question turned out to be a vast mass of growing *Vermetus* (*V. varians*), which from a short distance actually presented the appearance of a clump of rocks. A limestone of an analogous structure crops out in the meadow a few hundred feet from the shore. The same growth of *Vermetus* reappears at Whittaker's, a few miles further down the bay, where the matted tubes of the gasteropod form organic "boulders" or reefs stretching over acres of territory, one of the most striking features of this part of the coast. A yellow sand-rock, some three or four feet in thickness, appears at this point on the shore margin; its general aspect bears the impress of a recent formation, but I found in it the casts of one or more species of coral of a facies new to me, which, in the absence of other definable organic remains, led me to suspend judgment as to the age of the deposit. The same coral I afterwards identified in a more compact, and much more fossiliferous, limestone occurring on White Beach, Little Sarasota Bay.

On Perico Island, where we landed for the purpose of skinning our alligators, we found vast numbers of the common fiddler-crab of the coast (*Gelasimus pugilator*), which, in apparent concerted action, were hurrying from the sea-border into the interior, passing far beyond the line of their burrows. So numerous were the migrating hordes, that in many places they literally obscured the beach, and the noise of their progression was like that produced by a wind moving a heavy accumulation of autumn leaves. The border of the island was covered with a heavy fringe of mangrove, on whose aerial roots, considerably above water-level, we found the parasitic oyster (*Ostrea parasitica*) clinging in great abundance. The interior of the island supports a stunted growth of saw-palmetto, and the usually accompanying yellow-pine. We found a moccasin coiled on the leaf-stalk of a palmetto, about two feet above the ground—the first ophidian met with on our trip; the animal, although plainly cognizant of our approach, made no attempt to attack, and but a very feeble one to escape, and was consequently secured without much difficulty.

→ At a locality known as Mrs. Hanson's, opposite to which we anchored for the night, I was conducted to a spot where it had been reported a human skeleton lay embedded in the rock. My misgivings as to such a find were naturally very great, but I could not resist the temptation of satisfying myself personally in the matter, even at the risk of appearing over-credulous to my fellow-companions. The rock I found to be a partially indurated ferruginous sandstone, removed but a short distance from

the sea, and but barely elevated above it; the condition of its exposure was, doubtless, the result of recent sea-wash. I was much surprised to find actually embedded in this rock, and more or less firmly united with it, the skeletal remains of a mammalian, which I had little difficulty in determining to be the genus *Homo*. Most of the parts, including the entire head, had at various times been removed by the curiosity-seekers of the neighborhood, but enough remained to indicate the position occupied by the body in the matrix. The depression which received the head was still very plainly marked, but unfortunately the outline had been too much disturbed to permit of any satisfactory impression being taken from it. I was able to disengage from a confused mass of stone and skeleton two of the vertebræ, which Dr. Leidy has kindly determined for me to be in all probability the last dorsal and first lumbar. The distinctive cancellated structure of bone is still plainly visible, but the bone itself has been completely replaced by limonite.

How great an antiquity these human remains of iron indicate, I am not prepared to say. That they are very ancient there can be no question, considering the nature of their fossilization, and the position which they occupy; but to which exact horizon in the geological scale they are to be referred, still remains an open question. I in vain searched the region for geological landmarks by which the special bed containing the remains could be correlated, but in vain. I could find no trace of any other fossil in the deposit, nor, owing to the low position of the bed, and the absence of overlying deposits of any magnitude, could its homotaxis with reference to the fossiliferous deposits occurring elsewhere on the bay be ascertained. The probability naturally lies with the Post-Pliocene age of the deposit, but for aught we know to the contrary, the age represented might in fact be Tertiary. At all events, as has already been stated, the remains are very ancient, and not impossibly they represent a period as far (if not further) removed from the present one as is indicated by any other human remains that have thus far been discovered.

About three-quarters of a mile below Mrs. Hanson's a compact terrestrial sand-rock, containing numerous individuals of several common forms of recent snail (*Polygyra volvoxis*, etc.), and evidently representing a modern formation, is exposed at water-level, extending for some little distance up the channels that have been left by the retreating waters. The presence of this hard rock of terrestrial origin on the immediate ocean front, and in the very path of existing waters, coupled with the circumstance of the complete absence of associated marine forms of life, renders it more than probable that this portion of the coast has quite recently been undergoing subsidence. It is true that the encroaches of the sea might be attributed to a simple washing away of the coast line, but this hardly appears probable in view of the resisting nature of the

rock, and the fact that it rests horizontally and shelves for some distance, at least, under the sea.

From this point Captain Strobhar and I made a diversion in favor of Philippi's Creek, a tributary of the bay. We found plenty of water in the stream itself, but the approaches to it, owing to the widening out of the channel, were very shallow, and for a considerable distance our skiff had to be dragged over the bottom. The difficulties of the passage were further increased by the numerous islands, largely overgrown with mangrove, which interpose themselves in the mouth of the creek, rendering the channel very intricate. Almost at the mouth of the stream, and at several points above the mouth, we found a true compact coquina rock, some three to four feet in thickness, the first time, I believe, that such a rock had been noted to occur on the west coast of the peninsula. The shell fragments composing it were largely triturated, and in most instances not even the genera of mollusks represented by them could be identified. Underneath this rock, where present, there crops out a yellow arenaceous limestone, which is exposed at various points along the stream, rising about two feet above water-level. It contains coral impressions and numerous shells, many of the latter apparently identical with forms found in the yellow rock of the Manatee River (*Pecten Jeffersonius*, etc.), and representing either a Miocene or early Pliocene formation, more likely the former. I found at one spot, evidently washed out from the bank, a large fragment of the jaw of a cetacean. Philippi's Creek is reported to harbor numerous alligators, but on our trip both up and down the stream we saw but a single individual, and that a young animal. The weather was not very warm, and possibly the reptiles may have kept beneath the surface.

A water-way through the mangroves conducts from Big Sarasota Bay to Little Sarasota Bay, and may be used with much advantage by small craft. Owing to the chances of stranding we were compelled to take the outside route, and thus to pass the bars at both inlets. A considerable surf was rolling at the time we entered Little Sarasota Inlet just before sun-down, but we succeeded in making the point, and anchored under the lee of the bar of sand that separates the inlet from the sea, in one of the most picturesque spots that we had thus far seen in our journey.

The rock guarding the entrance to the channel on the north side is a coquina, very similar to that found on Philippi's Creek. It is rapidly undergoing destruction through the wash of the sea, and will, doubtless, in a very short time be completely removed. In color it differs essentially from the typical coquina of the east coast, which is very light, or nearly white, whereas this one is by contrast rather dark.

On White Beach, on the inner side of the bay, we again found large

quantities of dead fish strewn over the shore. The same burden rested on the long line of oyster reef which extends not very far from this point into the bay, where thousands upon thousands of carcasses were heaped up in continuous banks, upon which the gorged turkey-buzzards were lazily attempting to recover from their revels. The air was actually foul with the odor of decomposition. A reef rock, of Miocene or early Pliocene age, I was unable to determine which, with numerous impressions or casts of corals, some of them identical with the forms found at Whittaker's, juts out on White Beach, where it has been largely honey-combed through the wash of the water, and in places is rendered soft and friable; in other spots, again, it is tough and very resisting. Among the numerous molluscan remains there were few that were retained in anything like a perfect state of preservation, and scarcely one that permitted of specific determination. Indeed, I only indicate with doubt the occurrence of *Pecten Jeffersonius*, *P. Madisonius*, and *Venus alveata*. In a somewhat different rock, but without doubt belonging to the same series, we found abundant casts of a large oyster, not unlikely *Ostrea Virginica*, associated with similar remains of the clam (*Venus Mortoni?*), cockle (*Cardium magnum?*) and a *Perna*. A small stream empties into the bay near this point, exposing heavy beds of rock on either bank to a thickness of some eight to ten, or twelve feet. I found a few casts of gasteropods in these deposits, and a few fragments of scallops, apparently *Pecten Madisonius*, but the fossils were not numerous, and barely determinable. The difficulty of wading in the stream, too, prevented me from penetrating very far. A short distance from this point we were conducted to a locality where the carapace of a large fossil turtle, measuring nearly three feet across, was embedded in the roadway, of which it formed a part. The time-honored passage of vehicles over it had completely crushed the carapace, breaking in the top, but the outline was still clearly defined in its entire circumference. I secured two large fragments, from which I had hoped to determine the specimen on my return, but, unfortunately, they were left behind at one of our packing stations.

Mr. Brock, who, in company with the cook, had during the absence of the remainder of the party explored a portion of North Creek, another tributary of the bay, reported the existence of a highly fossiliferous stratum exposed on the banks of that stream at an elevation of some ten to twelve feet. This stratum, which is underlaid by a white friable limestone, was traced for a distance of about three-quarters of a mile, but it is said to extend very much further. It is much to be regretted that want of time did not permit us to make a more extended exploration of this very interesting locality, and to definitely determine the different ages of the deposits occurring here. The shell bed is either Pliocene or Post-Pliocene, but the very limited number of fossils that were brought to me

for determination, among which I recognized the giant *Fasciolaria gigantea*, pear-conch (*Fulgur percersus*), and clam (*Venus mercenaria*?), did not permit me to settle the question. I strongly incline to the Pliocene age of the deposit, inasmuch as we subsequently found the same fossils occupying a nearly similar position along the upper Caloosahatchie, and in a stratum whose Pliocene age was placed beyond question. Still, from this correspondence alone, I should not like to pronounce too positively on the matter of correlation.

From Little Sarasota Inlet to Casey's Pass the ocean front is made up of a vast shell bank, three to five feet or more in thickness—a non-indurated coquina, if so it might be termed—which at the time of our visit was being rapidly destroyed through the action of the surf. The beach was strewn with dead shells, among which I in vain searched for a living specimen. We dragged in twenty feet of water, but the dredge struck on an unproductive shell-bottom, and brought principally fragments to the surface. The dredge was again thrown over just beyond Casey's Pass, bringing up fragments of arenaceous and serpuloid rock, besides numerous dead shells, principally of the genera *Arca*, *Cardita*, and *Venus*, the greater number of which were stained pink through some peculiar process of ferric oxydation. We also obtained several branches of an *Oculina*, still retaining much of the colored animal substance or coenosarc, which would go far toward confirming the assertion of our captain that a submerged coral reef exists opposite this point at a distance of a few miles from the coast. None of the coral-polyps were visible in the mass. We dragged again off Stump's Pass, in water of 10–15 feet, and obtained among other things a beautiful assortment of the large sand star-fish, *Luidia clathrata*.

LITTLE AND BIG GASPARILLA INLETS.—We made Little Gasparilla Inlet on the afternoon of Feb. 24th, anchoring for the night. This is considered to be one of the best collecting grounds on the coast, and our explorations on the following morning fully confirmed this impression, at least so far as our own personal experiences would permit us to form a judgment. The numerous shoals and grass flats, protected and exposed bayous or inlets, afford an almost endless variety of retreats to the different animal forms that abound here, and serve in great measure to circumscribe the individual habitats. Thus, one spot would be largely relegated to a species of *Cerithium* (*C. muscarum*), another to a second species of the same genus (*C. ferrugineum*), and a third to an association of both these forms. In one of the inlets I found large quantities of the green shells of *Fasciolaria tulipa* inhabited by the *Clibanarius vittatus*, the combined colony, as if with a common impulse, moving in one given direction. The correspondence existing between the color-tints of the hermit and that of its