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Department of the Interior:

U. S. NATIONAL MUSEUM.



BULLETIN

OF THE

UNITED STATES NATIONAL MUSEUM.

No. 25.

CONTRIBUTIONS TO THE NATURAL HISTORY
OF THE BERMUDAS.

VOLUME I.

EDITED BY

J. MATTHEW JONES and GEORGE BROWN GOODE.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

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ADVERTISEMENT.

This work is the thirty-first of a series of papers intended to illustrate the collections of natural history and ethnology belonging to the United States, and constituting the National Museum, of which the Smithsonian Institution was placed in charge by the act of Congress of August 10, 1846.

It has been prepared at the request of the Institution, and printed by authority of the honorable Secretary of the Interior.

The publications of the National Museum consist of two series—the Bulletins, of which this is No. 25, in continuous series, and the Proceedings, of which the sixth volume is now in press.

The volumes of proceedings are printed signature by signature, each issue having its own date, and a small edition of each signature is distributed to libraries promptly after its publication.

From time to time the publications of the Museum which have been issued separately are combined together and issued as volumes of the Miscellaneous Collections. These are struck off from the stereotype plates from which the first edition was printed, and in this form are distributed by the Smithsonian Institution to libraries and scientific societies throughout the world. Volume 13 of these collections includes Bulletins 1 to 10 inclusive; volume 19, vols. 1 and 2 of the Proceedings; volume 22, vols. 3 and 4 of the Proceedings; and volume 23, Bulletins 11 to 15 inclusive.

Full lists of the publications of the Museum may be found in the current catalogues of the publications of the Smithsonian Institution.

SPENCER F. BAIRD,

Secretary of the Smithsonian Institution.

SMITHSONIAN INSTITUTION,

Washington, June 1, 1884.

BOTANY OF BERMUDA.

ERRATA IN PART II., BULLETIN No. 25, U. S. NATIONAL MUSEUM.

- Page 35, line 26: for "pine" read *sine*.
Page 38, line 24: for "low" read *law*.
Page 45, line 7: for "Lance" read *Lane*.
Page 59, line 18: for "Ayland" read *Hyland*.
Page 59, line 21: after "wood" insert a semicolon.
Page 60, line 21: for "medeira" read *Madeira*.
Page 65, line 4: for "Vitch" read *Vetch*.
Page 65, line 17: for "tiliqua" read *siliqua*.
Page 68, line 12: for "Caffra-brom" read *Kaffir-boom*.
Page 68, line 20: for "peruiferum" read *peruiferum*.
Page 73, line 14: after "Japan-medlar" insert *Loquat*.
Page 73, line 27: for "Lip plant" read *Life plant*.
Page 79, line 26: for "thoris" read *koris*.
Page 84, line 5: for "heterophylla" read *heterophylla*.
Page 85, line 24: for "spendens" read *splendens*.
Page 88, line 8: for "shore" read *share*.
Page 91, line 14: for "gnaphalodes" read *gnaphaloides*.
Page 96, line 14: for "aryroncara" read *argyroneura*.
Page 104, line 15: after "obscure" insert a comma.
Page 105, line 18: for "atropha" read *jatropha*.
Page 113, line 32: for "ovedoxa" read *orcodoxe*.
Page 114, line 18: for "Vershafelii" read *Vershaftii*.
Page 127, line 17: for "atropha" read *jatropha*.
Page 128, line 9: for "coriandum" read *coriandrum*.
Page 128, line 31: for "Hogwood" read *Hogweed*.
Page 128, lines 37-38: for "98" read 80.
Page 128, for line 57 insert *Jatropha* 105.
Page 129, line 48: for "Pane" read *Plane*.
Page 131, line 5: dele *With* 64.
Page 131, for line 10 insert *Yellow wood* 56.
Page 134, line 53: for "tiliqua" read *siliqua*.
Page 134, line 60: for "Brugmonsia" read *Brugmansia*.
Page 136, line 5: for "argyroncara" read *argyroneura*.
Page 137, line 53: for "J. Jatropha" read *J. curcas*.
Page 139, line 1: for "Pipearceæ" read *Piperacæ*.
Page 139, line 41: for "guayva" read *guava*.
Page 140, line 8: for "flabilliformis" read *flabelliformis*.
Page 141, line 3: for "stenataphrum" read *stenotaphrium*.
Page 141, line 12: for "Swietinia" read *Swietenia*.

CONTRIBUTIONS

TO THE

NATURAL HISTORY OF THE BERMUDAS.

EDITED BY

J. MATTHEW JONES AND GEORGE BROWN GOODE.

VOL. I.

PART I.—GEOLOGY	By PROF. WILLIAM NORTH RICE.
PART II.—BOTANY	By GEN. SIR JOHN HENRY LEFROY.
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PART V.—NOTES ON BIRDS	By DR. C. HART MERRIAM.
PART VI.—REPTILES	By SAMUEL GARMAN.
PART VII.—ANNELIDS.....	By PROF. H. E. WEBSTER.

WASHINGTON:
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1884.

PART VI.

THE REPTILES OF BERMUDA.

BY

SAMUEL GARMAN,

OF THE MUSEUM OF COMPARATIVE ZOOLOGY, CAMBRIDGE.

THE REPTILES OF BERMUDA.

SAURIA.—Lizards.

EUMECES LONGIROSTRIS Cope.

TESTUDINATA.—Turtles.

SPHARGIS COBIACEA Gray. Leather Back.

CHELONIA MYDAS Schw. Green.

THALASSOCHELYS CAOUANA Fitz. Loggerhead.

ERETMOCHELYS IMBRICATA Fitz. Hawksbill.

Five species of reptiles are all that are known to be found on the Bermudas. Only one of the five, *Eumeces longirostris*,* can be claimed by these islands as their own. This one is a long-bodied, short-limbed, red-faced little scinc, which loves the sunshine so brilliantly reflected in the bronzed tint of the smooth glossy scales, which has colors so subdued

**EUMECES LONGIROSTRIS*.

Plestiodon longirostris Cope, 1861, Pr. Ac. Phil., 313.

Eumeces longirostris Cope, 1875, Check List, 45.

Eumeces longirostris Goode, Am. Jour. Sci. 1877, 290.

Body moderately stout, fusiform, depressed; head little larger than the neck, swollen at the angle of the mouth, tapering to the narrow muzzle; tail about one-sixth longer than the body, stout, conical, tapering to a point. Limbs short, rather stout; anterior reaching the fourth labial, posterior—without the toes—extending half way to the axilla. Digits compressed, with strong curved nails. Eye small; lower lid with large scales in front of the pupil which are translucent, if not transparent. Mouth-cleft medium, curved. Snout elongate, slightly swollen near the end in large specimens. Top of head somewhat flattened, with nineteen shields. Internasals in contact between anterior prefrontal and rostral. Prefrontals three, a pair in contact between frontal and anterior; latter broader than long, hexangular. Frontal hexangular, widening forward, obtuse angled in front. Supraoculars four on each side, anterior small, in contact with frontal and prefrontals. A pair of small quadrangular parietals, separating occipitals and frontal, in contact by their interior angles. Interoccipital elongate, narrow, wider and acute-angled forward. Posteriorly each occipital is joined by a large broad scale and laterally by an elongate temporal. Three plates between the angle of the eye and the nasal, anterior small. Rostral little broader than high, convex. Temporals 1—2, lower posterior large, semicircular margin forward, resting upon the hinder labial. Labials eight, anterior five lower, posterior three larger, sixth and seventh in contact with the small scales covering the eyelid, fourth and fifth in contact with a pair of small scales below the front angle of the eye. Mental large, broader than long, broader than rostral. Infralabials eight (8—9). A broad submental (1—2) immediately behind the mental. Behind these there are three nearly as broad, the front pair of which are in contact. Farther back there are one or two elongate narrow shields touching the infralabials. Scales

and movements so rapid that the flash and rustle of disappearance are most often all that tell of its presence, and which, when caught napping by the sharp-sighted hunter, in favorite haunts in the wood among the rocks or about the buildings, frequently secures freedom by leaving its tail as a trophy in the hand of the enemy while retiring, but little the worse for the loss, to grow another. Its most common name is "Skink." This name is shared with many other species of the large family to which it belongs, a family which has representatives in nearly all the tropical and subtropical parts of the earth. In some of the West Indies allied species are called "Slippery Backs," in others "Mabouia," and in the United States "Blue tails" and "Scorpions."

Captain John Smith mentions the occurrence of lizards on the Bermudas previous to 1623, but in the same breath says they no longer existed at that date. "Lizards there were many and very large, but now none, and it is said they were destroyed by the Cat." There is a possibility that formerly some large species existed here, as at present upon Navassa (*Metapoceros*), or upon the Galapagos (*Conolophus* and *Amblyrhynchus*). Yet it is hardly probable that any lizards were entirely exterminated; it is more likely that the existing species, being without enemies and undisturbed, reached a greater size than is possible on the islands densely populated as they now are. One can have little idea of what the Captain had in mind when he used the word "large." If there had been very large lizards other writers would not have passed them without notice. Rev. Lewis Hughes, 1614, says nothing about them. Among his statements concerning the animals, after enumerating the birds, he says that "Here is no kind of beasts but hogges and cattes and they but in one or two places which are thought to come at first by

smooth, with two pores, hinder margin rounded, in thirty-six longitudinal rows, those of the flank irregularly ascending backward. Scales of middle of back and belly larger, those under the middle of the tail broadest. A small plate on each side of the pair of large ones in front of the vent.

Colors of young light brown on back, dark on flanks, lighter and bluish beneath. A dark-bordered white line along each edge of the back from the anterior supraciliary to the tail. A similar more or less broken line from below the eye across the ear to the hip. Between the white bands the flanks are dark brown. The dark color shades into the bluish at the sides of the abdomen. A narrow white band extends along the inner edges of the supraciliaries forward around the outer edges of prefrontals. Chin and throat yellowish red, cheeks more brown, and top of head reddish brown. Limbs and sides of belly and tail mottled with light. With age the white becomes more obsolete, the ground color a more uniform darker brown, and the yellowish red predominates on checks and crown. Specimens described furnished by Professor Goode, for whom they were collected by J. Mathew Jones, esq.

Very common on the Bermudas, frequenting the old walls and stone heaps in the (Jones).

means of Shippe-wracke. The hogges were manie, but are now brought to a small number." Lizards do not appear in the list noted by William Strachy, 1610. "Worms I neuer saw any, nor any venomous thing, as Toade, or Snake, or any creeping beast hurtfull, onely some Spiders, which as many affirme are signes of great store of Gold." John Hardy's poetical description of the Bermudas, 1671, tells us that "No Adders, Serpents, Toads, or Snakes are seen to prejudice Man's health," but says nothing of lizards.

In recent times there have been several notices, one of which, that of Mr. Jones, in "The Naturalist in Bermuda," 1859, reports them to be very common. From the work of Dr. T. L. Godet, 1860, p. 251, the following is taken :

"In the class Reptilia (reptiles) we find the order *Chelonia* (the turtle tribe). This order is represented by the green turtle (*Chelonia mydas*, Holbrook); and the hawk's-bill (*Chelonia caretta*, Holbrook) is more or less brown or rufous. In the order *Sauria* we have the lizard tribe. The saurian reptiles are distinguished from the chelonian by the want of a shield and by the presence of teeth. The bluetailed skink (*Scincus fasciatus*, Holbrook) and the *Scincus ocellatus* (Da.) are representatives of this order. The *Scincus ocellatus* burrows in the sand so quickly that it is out of sight in an instant, and appears rather to have found a hole than made one. In the class Reptilia we have had occasion to name but a few genera and species; so barren are these islands in that class of animals which respire by lungs, having red and cold blood, and bodies covered with horny or cartilaginous plates or with hard scales."

Apparently the doctor supposed there were two species of Bermuda lizards, but of those he mentions, one, *fasciatus*, belongs to the Southern United States, and the other, *ocellatus*, to Australia, and neither is found on these islands. The species found here is evidently not a recent arrival. It differs so much from any of its neighbors in the new world that the question of its origin has become quite a puzzle. Scincs, Geccos, and other small reptiles of similar habits are sometimes carried immense distances in the ballast or cargoes of vessels. There would be no great difficulty in the way of introduction, but as yet we know of no species so closely allied as to suggest a common parentage among the more immediate ancestry.

The other four species making up the reptilian fauna of the Bermudas belong to the Sea Turtles, whose erratic habits and great capabilities as mariners have made them visitors upon all the shores of the

temperate and torrid zones long enough before our race is said to have taken its first lessons of navigation in boats made of their gigantic shells. Of two of the four, Mr. Jones says that the Green, *Chelonia mydas*, is "the common turtle of the Bermudas," but "not abundant"; and the Hawkbill, *Eretmochelys imbricata*, is "not unfrequently taken."

The other two, the Leather Back, *Sphargis coriacea*, and the Loggerhead, *Thalassochelys caouana*, are only occasional visitors. They were first placed upon the list by Professor Goode, 1877. Below I have quoted from a number of accounts of the Bermudas and their life by the pens of those who wrote during the first half century of the existence of the colony. These quotations give a fair idea of the abundance, habits, and capture of turtles in those early days. Below them is placed all that could be gathered in the West Indies and among the Florida Keys, where the turtles are still numerous, but where, as was the case in the Bermudas, reckless destruction is gradually reducing their numbers.

The history of the Bermuda reptiles reaches back to a very early date in that of the islands themselves. December 17, 1593, the French vessel, commanded by de la Barbotière, was wrecked upon the Isle of Bermuda, and it was not until the 11th of the following May that the crew was able to get away, which they finally did in a vessel of their own make. Henry May, an Englishman who happened to be with the party, furnished an account of the adventure and the construction of the vessel, in which occurs the following:

"In stead of pitch we made lime, and mixed it with the oyl of tortoises, and as soone as the carpenters had calked, I and another, with ech of vs a small sticke in our hands, did plaister the mortar into the seames, and being in April, when it was warm and faire weather, we could no sooner lay it on, but it was dry, and as hard as a stone. In this moneth of April 1594, the weather being very hot, we were afrayd our water should fayle vs; and therefore made the more haste away: and at our departure we were constrayned to make two great chests. and calked them, and stowed them on ech side of our mainmaste, and so put in our prouision of raine water, and thirteen line tortoises for our food, for our voyage which we intended to Newfoundland. In the South part of this Island of Bermuda there are hogs, but they are so leane that you cannot eat them, by reason the Island is so barren, but it yeldeth great store of fowle, fish and tortoises."

An anonymous writer, in an account of the loss of the ship of Sir

George Summers, July 28, 1609, among other things upon which his party subsisted, says: "Lastly they found the berries of Cedar, the Palmetto tree, the Prickle peare, sufficient fish, plentie of Tortoises and diuers other kinds which sufficed to sustaine nature." Sylvanus Jourdan's narrative of the same occurrence adds:

"There are also great store of Tortoises (which some call turtles), and those so great, that I have seene a bushell of egges in one of their bellies, which are sweeter than any Henne egge: and the Tortoise itselfe is all very good meate, and yeldeth great store of oyle, which is as sweete as any butter: and one of them will suffice fifty men a meale at least: and of these hath beene taken great store, with two boates at the least forty in one day. . . . We carried with vs also a good portion of Tortoise oyle, which either for frying or baking did vs very great pleasure, it being very sweete nourishing and wholesome."

William Strachy's account of this event is still more complete. It is strange he makes no mention of the lizards in his enumeration of the animals:

"Wormes I neuer saw any, nor any venomous thing, as Toade, or Snake, or any creeping beast hurtfull, onely some Spiders, which as many affirme are signes of great store of Gold. . . . And when there was any fret of weather (for vpon euery increase of wind the billow would be so great, as it was no putting out with our Gundall or Canow) that we could not fish nor take Tortoyses, then wee killed our Hogs. But in February when the Palme Berries began to be scant or dry, and the Cedar berries failed two moneths sooner, true it is the Hogs grew poore, and being taken so, wee could not raise them to be better, for besides those Berries we had nothing wherewith to franke them: but euen then the Tortoyses came in againe, of which wee daily both turned vp great store, finding them on Land, as also sculling after them in our Boate strooke them with an Iron goad, and sod, baked, and roasted them. The Tortoyse is reasonable toothsom (some say) wholesome meate. I am sure our Company liked the meate of them verie well, and one Tortoyse would goe further amongst them then three Hogs. One Turtle (for so we called them) feasted well a dozen Messes, appointing sixe to euery Messe. It is such a kiud of meat as a man can neither absolutely call Fish nor Flesh, keeping most what in the water, and feeding vpon Sea-grasse, like a Heifer, in the bottom of the Coues and Bayes, and laying their Egges (of which wee should finde five hundred at a time in the opening of a shee Turtle) in the Sand by the

shoare side, and so couering them close leaue them to the hatching of the Sunne, like the *Manati* at *Saint Dominique*, which made the *Spanish Friars* (at their first arrinall) make some scruple to eate them on a Friday, because in colour and taste the flesh is like to morsells of Veale. Concerning the laying of their Egges, and hatching of their young *Peter Martyr* writeth thus in his *Decades of the Ocean*: At such time as the heate of Nature moueth them to generation, they come forth of the Sea, and making a deepe pit in the sand, they lay three or foure hundred Egges therein: when they haue thus emptied their bag of Conception, they put as much of the same againe into the Pit as may satisfie to couer their Egges, and so resorte againe vnto the Sea, nothing carefull of their succession. At the day appointed of Nature to the procreation of these creatures there creepeth out a multitude of Tortoysses, as it were Pismyers out of an anthill, and this only by the heate of the Sunne, without any helpe of their Parents: their Egges are as big as Geese Egges, and themselnes growne to perfection, bigger than great round Targets."

The date of depositing the eggs is somewhat earlier than that given by the Florida Turtles. Striking with an iron goad is a hint of what is now known as pegging. Speaking of the pinnace they built, he says: "Wee breamed her otherwise with Lime made of Wilkeshels and an hard white stone which we burned in a kiln, slaked with fresh water, and tempered with Tortoysses Oyle." In the commission of Governor Moore, 1612, he is requested to "be very carefull to make tryall of a mixture made with oyle of tortoises and powder of shells or such like, wch necessitye compeld our men to find ovt for there vse instead of pitch and tarr for trimminge there shippis, and did them excellent service for that purpose." One of this governor's companions, in a letter supplementing Silvanus Jourdan's account, gives the name "Turkles," a form which I find still to be in use in Eastern Massachusetts. "Turkles thare bee of a mightie bignesse: one Turkle will serue or suffice three or four score at a meale, especially if it be a shee Turkle, for she will haue as many Egges as will suffice fiftie or three-score at a meale; this I can assure you, for they are very good and wholesome meate, none of it bad, no, not so much as the very guts and maw of it, for they are exceeding fat, and make as good tripes as your beastes bellies in England. . . Also, we haue olives grow with vs, but no great store: many other good excellent things we haue grow with vs, which this short time will not permit me to write on so largely as I might:

but this is of truth that Hogges, Turkles, Fish and Fowle doe abound as dust of the earth."

That wanton destruction had decidedly lessened the number of turtles as early as 1620 is evident from the following act of the Assembly of that year :

"AN ACT AGAYNST THE KILLINGE OF OUER YOUNG TORTOYSES.

"In regard that much waste and abuse hath been offered and yet is by sundrye lewd and impvident psons inhabitinge wthin these Islands who in there continuall goinges out to sea for fish doe upon all occasions, And at all tymes as they can meete with them, snatch & catch up indifferentlye all kinds of TortoySES both yonge & old little and greate and soe kill carrye awaye and devoure them to the much decay of the breed of so excellent a fishe the daylye skarringe of them from of our shores and the danger of an utter distroyinge and losse of them.

"It is therefore enacted by the Authoritie of this present Assembly That from hence forward noe manner of pson or psons of what degree or condition soeuer he be inhabitinge or remayninge at any time wthin these Islands shall p^rsume to kill or cause to be killed in any Bay Sound Harbor or any other place out to Sea: being wthin five leagues round about of those Islands any young TortoySES that are or shall not be found to be Eighteen inches in the Breadth or Dyiameter and that upon the penaltye for euerye such offence of the fforfeytur of fifteen pounds of Tobacco whereof the one half is to be bestowed in publike uses the other upon the Informer."

Allusions to the turtles become less frequent in the latter half of the century. In fact, it would seem as if the first twenty or thirty years of the settlement's existence had served so to reduce their numbers as to make them somewhat rare. This is the opinion of General Lefroy, to whose great work on the Bermudas I am indebted for the early history. In the preface of his work (Mem. Bermudas, Vol. I, preface, p. viii) he says: "The abundance of turtle, fish, and fowl rapidly came to an end." Other writers of recent times mention them as occurring in the waters off the shores, but do not speak of them as abundant. General Lefroy states in a foot-note (Vol. I, p. 67) that "The largest hawksbill turtle killed for many years past weighed 150 pounds; the largest green turtle 145 pounds in the shell." General Nelson, Geology of Bermuda, 1837, notes the occurrence of very large turtle bones in the sands near the shore. I give his statements at second hand, as found in Mr. Jones's book: "Turtle bones have also been dug up in the loose sand of the sea-

beach, the turtles sharing the same fate as the bird before mentioned, being buried whilst depositing their eggs. Colonel Nelson was informed by an eye-witness that the dimensions of the skeletons of these animals were 9 feet in length by 7 in breadth." It is unfortunate that we do not know the species of turtle to which these bones belonged. There is room for difference of opinion in regard to the time of the turtle's interment. During storms bodies that have been thrown upon the beach by the waves are sometimes buried to considerable depths by the sand. A short time after the "epidemic" that was so fatal to the fishes on the western coast of Florida, in the fall of 1878, I saw the bodies of a number of large turtles, probably killed by the same cause, floating along with the myriads of dead fishes in the edge of the Gulf Stream. A storm from a particular direction might have heaped up and buried that refuse of death upon the windward shore of some land, perhaps to be unearthed again by geologists of the future who would reckon the age of that stratum in millions of years.

The turtles of the Bermudas are of species more abundant in the West Indies and around the shores of the Caribbean and the Gulf of Mexico. Consequently I have not hesitated to gather in those localities, where it was more accessible, information concerning these creatures for use in an account of Bermuda reptiles. There is little doubt that turtles from the West Indies visit the Bermudas. The sea turtles are capable of enduring such an amount of hunger and fatigue, and are possessed of such powerful muscular organization, that, aided by the tides and currents, they perform journeys of almost incredible length. It is not a very rare occurrence that they are met with in mid-ocean. Those taken on the coasts of England are supposed to have crossed the Atlantic with the help of the Gulf Stream. Some herpetologists think it likely that turtles cross the Atlantic and enter the Mediterranean. The Leatherback and Loggerhead are the most erratic. Though their proper home may be said to extend not more than 35° on each side of the equator, they are found straggling as many as 15° farther to the north or south. If specimens enter the Atlantic from the other oceans it is most likely to be by way of the Cape of Good Hope, where the currents would seem to favor the passage. However, there is only one case in which there is any doubt, that of *Sphargis*, of which specimens from the different oceans are so much alike that writers are still undecided whether there is more than one species. Certain respects in which the Pacific "Trunkbacks" differ from those of the Atlantic have induced

me to separate them, distinguishing the former by the name *Sphargis schlegelii*, and the latter by that by which it is commonly known, *Sphargis coriacea*.

The Green Turtle, *Chelonia*, and the Hawkbill, *Eretmochelys*, seldom venture more than 35° from the equator. Species of these genera are unlike in the Atlantic and Pacific. Those of *Chelonia* are most numerous and seem to vary most according to locality, which would suggest a disposition less erratic or perhaps a distribution determined to some extent by that of the grass of their favorite pastures. On our coasts these turtles range from the Carolinas to Southern Brazil, and from Southern California to Peru. The places of greatest abundance are on the shoals in the vicinage of low sandy beaches or islands not occupied by men. Persons who make a business of collecting turtles and eggs in the Florida Keys and among the West Indies claim that the great demand has resulted in no diminution of the numbers. In the Bermudas, as we have seen, those well able to decide are satisfied that turtles are growing less numerous.

For much of the information given below I am indebted to my friend Richard M. Kemp, of Florida, who has taken great pains to secure answers to the lists of questions sent out; the balance was gathered upon the grounds by observation or from the turtlers. His notes included items concerning the "Bastard," a turtle intermediate between the Loggerhead and Green, of which he was fortunate enough to secure a pair of fine specimens and which have been elsewhere described under the name *Colpochelys Kempii*. Young turtles of the five kinds are eaten. Green turtles are most sought. Old ones of the other kinds are not so palatable. Bastards and Trunkbacks are least cared for. All kinds are found in the same region during the entire year. "They eat seaweed, crawfish, conchs, fish, a kind of sponge called Loggerhead sponge, and the Portuguese men-of-war." The latter, *Physalia*, are quite plentiful in the winter, and turtles of all kinds are very fond of them and are easily taken while eating. They shut their eyes to avoid the stings of the men-of-war, constantly using the flippers to brush them away and can at such times be approached and taken into a boat without pegging. On the turtle grounds there were numbers of specimens of a large marine sponge, sometimes as much as 3 feet in diameter, and with very little silicious framework, from which portions had been torn. These were said to be Loggerhead sponges from which turtles had been eating. A larger proportion of the food of the Green Turtles

is vegetable. When in the crawls or turtle pens they are fed upon fishes and meats of various kinds, as are the other sorts. The principal food of the genus (*Chelonia*) seems to be the sea-grass, *Zostera marina*, commonly called "Turtle Grass." When grazing turtles eat the roots, and the tops of the grass rising to the surface mark the feeding ground and often betray them to the "turtler." My informant tells me the Loggerheads nip the smaller portion of the spiral from the large conchs, and in this way extract the animal. Trunkbacks sometimes exceed 1,200 pounds in weight. The largest we have been able to measure was close upon 7 feet in length and weighed about 1,000 pounds. The Green are next in size. Eight hundred and fifty pounds is the largest of which we can learn. The largest Loggerhead of which we have positive information did not exceed 450; and Mr. Kemp says a shell turtle weighing 160 pounds is a very large one.

Near the haunts prices of the meats vary from 4 to 10 cents per pound alive, and from 12 to 18 dressed. A specimen of Green Turtle weighing 100 pounds is considered to be between three and four years of age. In its first year it would attain a weight of 15 to 20 pounds. Turtles are captured by pegging, by means of long nets, and when they come on shore to lay. Ordinarily the creatures are timid and endeavor to escape. In the water it is not very difficult to follow them, as they rise from time to time to breathe. When tired out they go to the bottom, and seldom make much resistance to being hauled on board the boat or towed ashore by a line attached to the peg. A peg is a small steel instrument like a blunt nail, to which a long cord is attached, and which slips out of the socket in which it is placed, on the end of a long pole, on being struck into the shell of the turtle. Being firmly wedged by the bone, the peg enables the turtler to draw his prey about by the line attached to it. By much practice the turtlers become very dexterous in taking objects in the water. One who assisted me in collecting, and to whom I am indebted for a great deal of information, Daniel Williams, of Florida Keys, did not seem to have his aim at all affected by differences of depths or angles in situations in which a novice would find it difficult to strike objects of five times the size. During the mating season turtles are much less timid, and boats are allowed to approach quite near. The season varies somewhat for the different kinds. From the most reliable accounts it is April to June for the Green, Loggerhead, and Shell turtles (Hawkbill), and for Bastard and Trunkback it is December to February (see below). Coupling takes place in the water and

continues for considerable lengths of time. A strong nail on the first digit of the forward paddles is bent downward so as to form a hook, with which the shell of the female is grasped. "From two to four, sometimes five, lots of eggs, from 75 to 200 each, are laid in a season." The layings are fourteen to fifteen days apart—"never more than fifteen nor less than fourteen; so we know just when to expect her again, and always very near the place where she laid the first lot."

The nests are made at night. About to lay, the turtle approaches the shore cautiously; if not disturbed she lands and at once proceeds to select a place to dig. The excavation is a foot or more in depth. After the sand has been scooped out by the paddles and the eggs laid, the sand is replaced carefully and packed by the weight of the body during replacement. The trail from the water to the nest resembles the track of a stone-sled and leads to a space larger than the turtle which has been much trampled over. Somewhere in this space the turtler expects to find the eggs. He uses a small stick with which he probes the trodden area in all parts until, plunged through one or more of the eggs, the yelk upon the probe locates them. A story is told by the hunters to the effect that after the nest is finished the turtle goes along the beach a little way to trample over another space, in which no eggs are placed, before returning to the water. On the fourteenth or fifteenth night she is expected to return and make another nest near the first. The hunter waits for her, and after she has left the water turns her on her back. She is unable to right herself when turned, and her captor returns at his leisure to take her to market. The eggs hatch in six to eight weeks, and the young scramble into the water at once. They have no means of defense, and are eagerly preyed upon by various birds and fishes on their way and after they reach the sea. In the stomach of a shark, which the kindness of Lieut. S. M. Ackley, U. S. N., enabled me to examine, a 10-pound Green Turtle was found. The shell was too hard for the shark's teeth, and was scored all over by the efforts of the "man-eater" to divide it. Discouraged in his attempts he had at last swallowed it entire. The greatest destruction undoubtedly takes place during the first month or two of existence, while the shell is comparatively soft and the size such as places the little creatures at the mercy of the fowls and most of the common fishes.

It will be seen that the Florida authorities place the egg-laying time in April, May, and June; in this they agree with the majority. The notice cited above from William Strachy's narrative apparently places

it earlier, but it does not fix an exact date for the arrival of the turtles on the shore. In regard to *Sphargis*, however, I find something more conflicting, and, it being so definite as to dates, locality, &c., am inclined to believe it entitled to consideration. The item is copied from the Morning Journal of April 30, 1846, by Gosse in "The Naturalist's Sojourn in Jamaica," 1859, p. 306, and bears the marks of its origin in evidence of desire to make the most of it, yet, as Mr. Gosse suggests, it has sufficient appearance of accuracy to warrant preservation. The locality of the occurrence is Negril Bay, at the west end of Jamaica:

"The anxiety of the fishermen in this little village was aroused on the 30th of last month by the track of a huge Sea-monster, called a Trunk-turtle, which came on the sea-beach for the purpose of laying her eggs. A search was made, when a hole in the sand was discovered, about 4 feet in depth, and as wide as the mouth of a half-barrel, whence five or six dozen white eggs were taken out. The eggs were of different sizes, the largest the size of a duck's egg. On the morning of the 10th of this month, at half-past five o'clock, she was discovered by Mr. Crow on the beach, near the spot where she first came up. He gave the alarm, when all the neighbors assembled and got her turned on her back. She took twelve men to haul her about 200 yards. I went and measured her, and found her dimensions as follows: From head to tail, 6 feet 6 inches; from the outer part of her fore fin to the other end (to the tip of the other!), 9 feet 2 inches; the circumference round her back and chest, 7 feet 9 inches; circumference of her neck, 3 feet 3 inches; the widest part of her fore fins, 18 inches; her hind fins, 2 feet 4 inches in length. Her back is formed like a round top of a trunk, with small white bumps in straight lines, resembling the nails on a trunk; her color is variegated like the rainbow (probably the living skin displayed opaline reflections); there is no shell on her back, but a thick skin, like pump leather."

The date given would place the time of laying in the latter part of March instead of as early as claimed by the fishermen and turtlers, December, January, and February, for this genus. *Sphargis* is the most rare and least known of the sea turtles.

In early times turtles were so numerous around the Bermudas that two boats were able to take forty in a day; now they are so rare that this number more nearly represents what are taken in a season. To any one who takes the trouble to look into the matter the fact is patent enough that unless their enemies are restrained these animals are des-

come as rare in the waters of Florida and the West Indies now about the Bermudas. It would seem as if, with proper law, a creature which lays such a large number of eggs readily might be propagated and multiplied to almost any extent as growing their favorite food. We know of nothing to show that their pastures are so available. What locality is better adapted than the Bermudas for a grand experiment in turtle culture? We must watch and take care of themselves if let alone. Any movement that will protect them in the coupling and laying season and in their early days, or that will reduce the number of their destroyers, will tend to increase and cheapen the supply. Possibly eggs might be collected and hatched, the young guarded for a while, and set free after the days of greatest mortality had passed and they had grown too large and hard for the birds and smaller fishes. Eggs could be imported. Perhaps some action has already been taken in regard to the matter in the Bermudas and in the United States; if not, the question is respectfully suggested to the authorities as one worthy their attention.

LIST OF THE SEA TURTLES (CHELONIOIDÆ), WITH SYNONYMY.

ERETMOCHELYS IMBRICATA. Hawkbill. Caret.

Hab. Tropical Atlantic.

Chelonia (Eretmochelys) imbricata Fitz., 1843, Syst. Rept., 30.

Eretmochelys imbricata Agassiz, 1857, Contr. i, 381; Goode, 1877, Am. Jour. Sci., xvi, 290.

Testudo imbricata Linn., 1758 Syst. Ed. x, I, 197; 1766, Syst. Nat., Ed. xii, 350; Walb., 1782, Chelon., 46, 110; Schneid., 1783, Schildkr., 309,—1786, Mag. Z. Nat., 258; Gmelin, 1788, Linn. Syst. Nat., i, 1036; Donnd., 1798, Zool. Beitr., 3, p. 3; Schoepff, 1792, Hist. Test., 83, pl. 18 A and B; Latr., 1801, Hist. Rept., i, p. 50; Shaw, 1802, Gen. Zool., liii, 89, pl. 26 and 27; Daudin, 1805, Hist. Rept., v, p. 39.

Chelonia imbricata Schweigg., 1814, Prodr. Monogr. Chelon., 21; Gravenh., 1829, Del. Mus. Vrat., I, 6; Wagl., 1830, Syst. Amph., 133; Gray, 1831, Cataphracta, p. 52; Gray, 1831, Syn. Rept., Griff. An. King., ix, p. 21; Dum. Bibr., 1835, Erp. Gen., v, 547, pl. 23, f. 2; Bell, 1839, Brit. Rept., pp. 1 and 10; Holbr., 1842, N. A. Herp., ii, 39, pl. v; Coct. & Bibr., 1842, Rept. Cuba, 28; Bell, 1849, Brit. Rept., pp. 1 and 11, fig.; Dum., 1851, Cat. Meth., 25; Strauch, 1862, Chelon. Stud., 181; Sowerby & Lear, 1872, Tortoises, pl. 57 and 58; Temm. & Schl. 1838, Fauna Jap., Rept., p. 13. pl. V. f. 1, 2.

Caretta imbricata Merr., 1820, Syst. Amph., 19; Max., 1825, Beitr. Nat. Brazil, i, 24; Fitz., 1826, Neue Class. Rept., 44; Bonap., 1836, Chelon. Anal., 9; Gray, 1844, Cat. Tort., 54; Gray, 1855, Cat. Sh. Rept., 74 (part); Gray, 1870, Suppl. Cat. Sh. Rept., 119; Gray, 1873, Pr. Zool. Soc., 397; Gray, 1873, Hand list, 92; Girard, 1858, U. S. Expl. Exp. Rept., p. 440.

Onychochelys kraussii Gray, 1873, Pr. Zool. Soc., 398; Gray, 1873, Hand list, p. 93.

Chelonia virgata Wagl., 1833, Icon et Descr. Amph., pl. 29.

Chelonia multiscutata Kuhl, 1820, Beitr., 78.

References under various names: Rochefort, 1658, Hist. Ant., 231; DuTertre, 1667, Hist. Gen. Ant., ii, 229; Grew, 1681, Mus. Reg., 38, pl. 3, f. 4; Labat, 1724, Voy. Amer., i, pp. 182, 308; Sloane, 1725, Jamaica, ii, 331; Seba, 1734, Thesaur., i, 79, f. 4; Catesby, 1743, Carol., ii, 39; Brown, 1756, Jamaica, 465; Knorr., 1767, Delic. Nat., ii, p. 124, pl. 30; Daub. Dict. Encycl., 1784-92; Parra, 1787, Descr., &c., 112, pl. 42; LaC., 1788, Quad. Ovip., i, p. 105, pl. ii; Donnd., 1798, Zool. Beitr., iii, 3; Shaw, 1802, Gen. Zool., iii, 89, tab. 26 and 27; Bose, Nouv. Dict., 1816-19, vol. 34, 257; Cuv., 1817, Régn. Anim., 13; Kuhl., 1820, Beitr., 78; Lesson, 1834, Belang. Voy., 302; Bonnat., 1789, Erpét., 21; Ray, 1693, Synops., 260.

ERETMOCHELYS SQUAMATA. Hawkbill.

Hab. Tropical Pacific and Indian Oceans.

Eretmochelys squamata Agassiz, 1857, Contr., i, 385.

? *Caretta bissa* Rüpp., 1835, Neue Wirb. Abyssin., 4, taf. 2.

Chelonia imbricata Blyth, 1846, Jour. As. Soc., 376; Tschudi, 1845, Fauna Peru, Rept., 22.

Caretta imbricata Kelaart, 1852, Rept. Ceylon, i, 180.

Caretta squamata Krefft, 1871, Austral. Vertbr., 39; Theobald, 1876, Rept. Ind., 33.

Caretta Squamosa Girard, 1858, U. S. Expl. Exp. Rept., 442.

Caretta rostrata Grd., 1858, Expl. Exp. Rept., 446, pl. xxx, f. 8-13.

Testudo imbricata Penn., 1769, Ind. Zool., 87.

Le Caret Ferm., 1765, Hist. Holl. Équinox., 50.

THALASSOCHELYS CAOUANA. Loggerhead. Caouane.

Hab.—Tropical Atlantic.

Thalassochelys caouana Fitz., 1841, Zool. Ann. Wien Mus., i, 128,—1843, Syst. Rept., 30; Agassiz, 1857, Contr., i, 384; Goode, 1877, Am. Jour., 290.

Testudo caretta, Linn., 1758, Syst., Nat. 197; Linn., 1766, Syst., Nat. 351; Walb., 1782, Chelon., 4, 95; Gmel., 1788, Syst. Linn., 1038; Schœpff, 1792, Hist. Test., pp. 67, 74, pl. 16, 17, f. 3; Donnd., 1798, Zool. Beitr. iii, 9; Latr., 1801, Hist. Rept., i, p. 33; Shaw, 1802, Gen. Zool., iii, 85, pl. 23, 24, 25; Cuv., 1829, R. An., ii, 14; Griff., Pidg., 1831, An. King., ix, 20.

Caretta caouana Fitz., 1826, Neue Class. Rept., 44.

Chelonia caretta Gravenh., 1829, Del. Mus. Vrat., I, 7.

Caouana caretta Gray, 1844, Cat. Tort., 52; Gray, 1855, Cat. Sh. Rept., 73; Gray, 1870, Suppl. Cat. Sh. Rept., 118; Gray, 1873, Pr. Zool. Soc., 404; Gray, 1873, Hand-list, 89.

Chelonia caouana Schweigg, 1814, Prodr. Monogr. Chelon., 22; Risso, 1826, Eur. Merid., iii, 85; Wagl., 1830, Syst. Amph., 133, Tab. i, f. 1-23; Gray, 1831, Syn., 53; Bibr., 1832, Exp. Morée, Zool. 64; Dum. Bibr., 1835, Erp. Gen., ii, p. 552; Dum., 1851, Cat. Meth., 25.

Testudo caouana Bonnat., 1789, Erpét., 20; Daud., 1805, Rept., ii, p. 54, pl. 16, f. 2; Cuv., 1817, R. An., ii, 13.

Testudo cephalo Schneid., 1783, Schildkr., 303.

Caretta cephalo Merr., 1820, Amph., 18; Max., 1825, Beitr., i, 25; Risso, 1826, Eur. Merid., iii, 85.

Chelonia (caretta) cephalo Less., 1834, Voy. Belang., 300.
Chelonia (caouana) cephalo Coct. & Bibr., 1843, Rept. Cuba, 35.
Chelonia cephalo Temm. & Schleg., 1838, Faun. Jap., 23, f. 1, 2, 3, pl. 4.
Chelonia pelagorum Val., 1840, Rept. Morea, tab. 10.
Cephalochelys oceanica Gray, 1873, Pr. Zool. Soc., 408; Hand-list, 91.
Caouana elongata Gray, 1855, Cat. Sh. Rept., 73; Suppl., 1870, p. 118.
Eremonia elongata Gray, 1873, Pr. Zool. Soc., 403; Hand-list, 96.
Thalassochelys corticata Grd., 1858, Expl. Exp. Rept., 431; Strauch, 1862, Chelon. Stud., 187.

UNDER VARIOUS NAMES: Rondelet, 1554, Pisc. Libr., xvi, 445; Gesner, Aquat. Libr., 3, 1131; Gesner, 1554, Hist. Anim. Quad. Ovip., 114; Gesner, 1629, Hist. Anim., iv, 944; Aldrov. 1621, Quad. Ovip., 712; Rochefort, 1658, Hist. Ant., 231; Olear. Mus., 1666, 27; Dutertre, 1667, Hist. Ant., ii, 228; Ray, 1692, Synops. An., 257; Labat, 1724, Voy. Amer., i, pp. 182, 311; Seba, 1734, Thesaur., i, pl. 79, f. 6; Catesby, 1743, Carol., ii, 40; Brown, 1756, Jamaica, 465; Gronow, 1763, Zooph., p. 16, No. 71; Gottw., 1781, Phys. Anat. Schildkr; Parra, 1787, Descr., etc., 112, pl. 43; La C., 1788, Quad. Ovip., i, 95; Bechst. 1800, Ueb. La C., i, 110; Meyer, Zeitr.-Vertr., i, pl. 30, 31; Brown, 1776, Ill. Zool., 116, pl. 48; Mus., Besl., pl. 60; Edwards, Birds t, 206; Boac, Nouv. Dict., vol. 34, p. 256, 1816-'19; Cuv., 1817, Regn. Anim., 14.

THALASSOCHELYS OLIVACEA. Loggerhead.

Hab.—Tropical Pacific and Indian Oceans.

Chelonia olivacea Eschsch., 1829, Zool. Atl., Tab. 3, Descr., p. 2 (20); Cantor, 1847, Cat. Malay. Rept., 13.
Thalassochelys (Lepidochelys) olivacea Fitz., 1843, Syst. Rept., 30.
Thalassochelys olivacea Fitz., 1841, Zool. Ann. Wein Mus., i, 128; Agassiz, 1857, Contr., i, 385.
Chelonia dussumierii Dum. Bibr., 1835, Erp. Gen., ii, 557; Dum., 1851, Cat. Meth., 25.
Caouana dussumierii Smith, 1849, Zool. S. Africa, App., p. 2.
Chelonia caretta var. β , Gray, 1831; Cataphracta, 54.
Caouana olivacea Gray, 1844, Cat. Tort., 53; Gray, 1855, Cat. Sh. Rept., p. 73; Gray, 1870, Suppl. Cat. Sh. Rept., 118; Theobald, 1868, Jour. Linn. Soc., x, p. 20; Krefft, 1871, Austral. Vetebr., 39; Theobald, 1876, Rept. Ind., 32.
Lepidochelys olivacea Grd., 1858, Wilkes Exp. Rept., 435; Gray, 1873, Pr. Zool. Soc., 407; Gray, 1873, Hand-list, 91.
Caretta olivacea Rüpp., 1835, Neue Wirbelth. Abyssin., 7, pl. 3.
Testudo japonica Thunb., 1787, Vet. Akad. viii, 178, pl. vii; Schn., Gesellschaft Nat. Fr. Berl., x, 266.
Caretta thumbergtii Merr., 1820, Syst., 19.
Lepidochelys dussumierii Grd., 1858, Expl. Exp., 437.

THALASSOCHELYS (COLPOCHELYS) KEMPII.

Kemp's Gulf Turtle. "Bastard."

Hab.—Northeastern part of the Gulf of Mexico.

Thalassochelys Kempii Garman, 1880, Bull. Mus. Comp. Zool., 123.

CHELONIA MYDAS. Green Turtle.

Hab.—Tropical Atlantic and adjacent waters.

Testudo mydas, var. γ Linn., 1758, Syst. Nat., 197; Linn., 1766, Syst. Nat., 351; Gmel., 1788, Linn., Syst. Nat., i, 1037.

- Testudo mydas*, Schœpff, 1792, Hist. Test., 73, pl. 17, f. 2; Bonnat., 1789, Erpét., 19; Cuv., 1798, Tabl. Élém. 288,-1817, R. An., ii, 13,-1829, R. An. ii, 13; Oppel, 1811, Prodr., 9; Latr., 1801, Rept., i, 22, pl. 1, fig. 2; Daud., 1805, Rept., v, 10, pl. 10, f. 2; Griff. & Pidg., 1831, An. King., ix, 81.
- Chelonia mydas*, Schweigg., 1814, Prodr. Monogr. Chelon., pp. 10 & 22; Gray, 1825, Ann. Phil., x, 212,-1831, Synops. in Griff. An. King., ix, p. 20; Gray, 1831, Cataphracta, 52; Lesson, 1834, Belang. Voy., 299; Dum. Bibr., 1835, ii, p. 558; Holbrook, 1842, N. A. Herp., ii, 25, pl. 2; Cocteau & Bibron, 1843, Rept. Cuba, 19; Dum., 1851, Cat. Meth. Rept., 24; Agassiz, 1857, Contr., i, 378; Sowerby & Lear, 1872, Tortoises, 13, pl. 59 & 60; Gravenh., 1829, Del. Mus. Vrat., i, 5; Wagl., 1830, Syst. 133.
- Caretta mydas* Fitz., 1826, Neue Class. Rept., 44.
- Testudo viridis* Schn., 1783, Schildkr., 309, Tab. ii; Latr., 1802, Rept., i, 48.
- Chelonia viridis* Temm. & Schl., 1838, Faun. Jap., 18; Gray, 1844, Cat. Tort., 54; Gray, 1855, Cat. Sh. Rept., 75; Strauch, 1862, Chelon. Stud., 185; Gray, 1870, Suppl. Cat. Sh. Rept., 119; Gray, 1873, Pr. Zool. Soc., 402; Gray, 1873, Hand-list, 95; Girard, 1858, Expl. Exp., Rept., 453.
- Chelonia virgata* Coct. & Bibr., 1843, Rept. Cuba, 26 (part).

REFERENCES UNDER VARIOUS NAMES: Dutertre, 1667, Hist. Ant., ii, 227; Sloane, 1725, Jamaica, ii, 331; Rochefort, 1658, Hist. Ant., 228; Seba, 1734, Thesaur., i, pl. 79, f. 5; Catesby, 1743, Carol., ii, 38; Brown, 1756, Jamaica, 465; Gronow, 1764, Mus. Ichth., ii, 85, No. 68; Parra, 1787, Descr., etc., 112, tab. 41; La C., 1788, Quad. Ovip., i, 54, fol. 1, p. 92; Shaw, 1802, Gen. Zool., iii, 80, pl. 22; Lesson, 1843, Belang. Voy., 298, 299, 301, 302; Cuv., 1829, Regn. Anim., ii, 13; Audubon, Ornith. Biog., ii, 374; Bonnat. Encyl. meth., pl. 3, f. 2; Bosc. Nouv. Dict., 1816-19, p. 252, tome 34; Merr., 1820, p. 18; Wiegman. Ruthe, 1832, Handb. Zool., 164; Tschudi, 1845, Fauna Peru., 22.

Var. *Marmorata*.

Hab.—Atlantic, Ascension Island.

- Chelonia marmorata* Dum. Bibr., 1835, Erp. Gen., ii, 546; Dum., 1851, Cat. Meth., 24; Girard, 1858, Expl. Exp. Rept., 455; Strauch, 1862, Chelon. Stud., 187.

CHELONIA VIRGATA. Green Turtle.

Hab.—Tropical portions of Western Pacific and Indian Oceans.

- Chelonia virgata* Schweigg., 1814, Prodr. Monogr. Chelon. 21; Guerin, 1829-'38, Icon. Règn. Anim., pl. 1, f. 4; Dum. Bibr., 1835, Erp. Gen., ii, 541; Coct. & Bibr., 1843, Rept. Cuba (part); Blyth, 1846, Jour. As. Soc., 376; Cantor, 1847, Cat. Rept. Malay, 13; Gray, 1844, Cat. Tort., 54; Dum., 1851, Cat. Meth., 24; Gray, 1855, Cat. Sh. Rept., 74 (part); Agassiz, 1857, Contr., i, 379; Strauch, 1862, Chelon. Stud., 183; Swinhoe, 1863, Ann. Mag., 221; Theobald, 1868, Jour. Linn. Soc., x, 20; Gray, 1870, Suppl. Cat., Sh. Rept., 119; Krefft, 1871, Austral. Vert., 39; Gray, 1873, Pr. Zool. Soc. 402; Gray, 1873, Hand-list, 93; Theobald, 1876, Rept. Ind., 33; Girard, 1858, Expl. Exp. Rept., 437.
- Chelonia mydas* var. Gray, 1831, Cataphracta, 52, 53.
- † *Chelonia maculosa* Cuv., 1820, Règn. Anim., 13; Dum. Bibr., 1835, Erp. Gen., ii, 544; Dum., 1851, Cat. Meth., 24; Girard, 1858, Expl. Exp., Rept., 454.
- Chelonia lachrymata* Cuv., 1829, Règn. Anim., ii, 13.
- Caretta* or *Sea Tortoise* Bruce, 1778, Voy. Nile, v, pl. 42.
- † *Chelonia formosa* Girard, 1858, Expl. Exp., Rept., 456, pl. xxxi, f. 1-4.
- † *Chelonia tenuis* Gir., 1858, Expl. Exp., Rept., 461.
- † *Testudo macropus* Walb., 1782, Chelonoogr., 112.
- † *Euchelys macropus* Girard, 1858, Expl. Exp., Rept., 448, pl. xxxi, f. 9-11.

CHELONIA AGASSIZII.

Hab.—Tropical portion of Eastern Pacific.

Chelonia virgata Agassiz, 1857, Contr., i, 379.

Chelonia agassizii Dum. Boc., 1870, Exp. Sci. Mex., pt. 3, pl. 6, p. 26; Garman, 1880, Bull. Mus. Comp. Zool., 126.

CHELONIA DEPRESSA.

Hab.—Australian seas.

Chelonia depressa Garman, 1880, Bull. Mus. Comp. Zool., 124.

SPHARGIDIDÆ.

SPHARGIS CORIACEA. Trunk or Leather Turtle.

Hab.—Tropical and temperate portions of the Atlantic.

Testudo coriacea s. mercurii Rond., 1554, Pisc. libr., xvi, 450; Gesner, 1620, Hist. Anim., iv, 496.

Testudo coriacea Linn., 1766, Syst. Nat., 350; Schneid., 1763, Schildkr., 312; Vandell. ad Linn. Patav., 1761, fig.; Schœpff, 1792, Hist. Test., 123 to 128; Latr., 1801, Rept., i, 58, pl. 3, f. 1; Daud., 1805, Rept., ii, 62, pl. 18, f. 1; Turton, Brit. Fauna, 78; Griff. & Pidg., 1831, An. King., ix, 93.

Sphargis mercurialis Merr., 1820, Amph. 19; Risso, 1826, Eur. Merid., iii, 85; Max., 1825, Beitr. Natg. Brazil, i, 26; Grây, 1869, Pr. Zool. Soc., 224.

Chelonia coriacea Schweigg., 1814, Prodr. Monogr. Chelon., pp. 10, 20.

Chelonia (Sphargis) coriacea Gray, 1831, Synops. in Griff. An. King., ix, 20.

Sphargis coriacea Gray, 1831, Cataphracta 51; Dum. Bibr., 1835, Erp. Gen., ii, 560; Bell, 1839, Brit. Rept., 11; Holbr., 1842, N. A. Herp., ii, p. 45, pl. vi; Gray, 1844, Cat. Tort., 51; Bell, 1849, Brit. Rept., 12; Gosse, 1851, Jamaica, 306; Gray, 1855, Cat. Sh. Rept., 71; Agassiz, 1857, Contr., i, 373; Gray, 1864, Pr. Zool. Soc.; Gray, 1870, Suppl. Cat. Sh. Rept., 119, f. 40.; Gray, 1873, Pr. Zool. Soc., 411; Gray, 1873, Hand-list, 96; Goode, 1877, Am. Jour., xiv, 290; Bonap., Fauna Ital.; Jenyns, Brit. Vert., 290; Gervais, Nouv. Arch. Mus., viii, pp. 199-228, pl. 5-9.

Testudo tuberculata Gravenh., 1829, Rept. Mus. Vrat., 9.

Dermochelys atlantica (Les.) Cuv., 1836, Règn. Anim., i, 367; Cuv., 1829, Règn. Anim.

Dermatohelys porcata Wagl., 1830, Syst. Amph., 133, atl., pl. i, f. 1-23, ix, f. 10; Fitz., 1843, Syst. Rept., 30.

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