narrow, as, owing to the oblique position of the diaphragm, the thoracic cavity extends far back over the abdomen. The epiglottis and arytenoid cartilages of the larynx do not form a tubular pro­longation. The brain is comparatively small, with the convolutions on the surface of the cerebrum few and shallow. The kidneys are simple, and the testes abdominal. The uterus is bicornuate. The placenta is non-deciduate and diffuse, the villi being scattered generally over the surface of the chorion except at the poles. The umbilical vesicle disappears early. The teats are two, and pectoral or rather post-axillary in position.

In vol. lxxvii. of the *Zeitschrift für wissenschaftliche Zoologie* Mr L. Freund describes in detail the osteology of the flippers of the dugong as displayed in “ sciograph ” pictures. These show that the carpus of the adult consists of three large bones. Of the two in the first row, one consists of the fused radiale and intermedium, and the other of the ulnare plus the pisiform and the fifth carpale, the lower bone being composed of the four inner carpalia. In the manati the reduction of the carpus has been carried to a less extent, the radiale being in some instances distinct from the intermedium, while in other cases in which these two bones are fused the four inner carpalia remain separate.

Sirenians pass their whole life in water, being denizens of shallow bays, estuaries, lagoons and large rivers, and not met with in the high seas far away from shore. Their food consists entirely of aquatic plants, either marine algae or freshwater grasses, upon which they browse beneath the surface, as the terrestrial herbivorous mammals do upon the green pastures on shore. To visit these pastures, they come in with the flood-tide and return with the ebb. They are generally gregarious, slow and inactive in their movements, mild, inoffensive, and apparently unintelligent in disposition. Though occasionally found stranded by the tide or waves, there is no evidence that they voluntarily leave the water to bask or feed on the shore. The habit of the dugong of raising its round head out of water, and carrying its young under the fore fin, seems to have given rise, among the early voyagers in the Indian Ocean, to the legendary beings, half human and half fish, in allusion to which the name *Sirenia* was bestowed by liliger. The species now existing are few. One species, *Rhytina gigas* of the North Pacific, was exterminated through the agency of man during the 18th century; and the others, being valuable for their flesh as food, for their hides, and especially for the oil obtained from the thick layer of fat which lies immediately beneath their skin, diminish in numbers as civilized populations occupy the regions forming their natural habitat. The species are confined to the tropical regions of the shores of both sides of the Atlantic and the great rivers which empty themselves into that ocean, and to the coasts of the Indian Ocean from the Red Sea to North Australia.

As regards dentition (or the want thereof) the three modern genera are remarkably different; and while on this and other grounds some writers refer them to as many separate families, by others they are all included in the *Manatidae.*

In the manatis *(Manatus)* the incisors, 2/2 in number, are rudi­mentary, and concealed beneath the horny mouth-plates, and disappearing before maturity. Molars about 20/20, but rarely more than 6/6 present at one time; the anterior teeth failing before the posterior come into use; similar in characters from beginning to end of the series; with square, enamelled crowns, the grinding surface raised into tuberculated transverse ridges. The upper teeth with two ridges and three roots, the lower with an additional (posterior) ridge or heel and two roots. The cervical vertebrae present the anomaly of being reduced to six in number, the usual vertebral formula being C 6, D 15-18, L and C, a 25-29. Rostrum of the skull, formed by the union of the premaxillae in front of the nasal aperture, shorter than the length of the aperture and scarcely deflected from the basi-cranial axis. Tail entire, rounded or shovel­shaped. Rudimentary nails on the fore-limbs. Caecum cleft.

Manatis inhabit the shores of, and the great rivers which empty themselves into, the Atlantic within the tropics. The American *(Μ. australis)* and African *(Μ. senegalensis)* forms are generally considered distinct species, though they differ but little from each other in anatomical characters and in habits. There is also the small *Μ. inunguis* of the Amazon, which has no nails. They are rather fluviatile than marine, ascending large rivers almost to their sources (see Manati).

In the dugong *(Halicore)* the upper jaw is furnished with a pair of large, nearly straight, tusk-like incisors, directed downwards and forwards, partially coated with enamel. In the male they have persistent pulps, and bevelled cutting edges, which project a short distance from the mouth, but in the female, though they remain through life in the alveolar cavity, they are not exserted, and, the pulp cavity being filled with osteodentine, they soon cease to grow. In the young there is also a second small deciduous incisor on each side above. At this age there are also beneath the horny plate which covers the anterior portion of the mandible four pairs of slender conical teeth lodged in wide socket-like depressions which become absorbed before the animal reaches maturity. The molars are usually 5/5, sometimes 6/6, altogether, but not all in place at once, as the first falls before the last rises above the gum; they are more or less cylindrical in section, except the last, which is compressed and grooved laterally, without distinction into crown and root, increasing in size from before backwards, with persistent pulps and no enamel. The summits of the crowns are tuberculated before wearing, afterwards flattened or slightly concave. Skull with rostrum formed by the union of the premaxillae in front of the nasal aperture, longer than the aperture itself, bending downwards at a right angle with the basi-cranial axis, and enclosing the sockets of the large tusks. Anterior part of the lower jaw bent down in a corresponding manner. Vertebrae: C 7, D 18-19, L and C 30. Tail broadly notched in the middle line, wτth two pointed lateral lobes. No nails on the fore-limbs. Caecum single. The genus is repre­sented by *H. tabernaculi* from the Red Sea, *H. dugong* from the Indian seas and *H. australis* from Australia. (See Dugong.)

The last genus is represented only by the extinct *Rhytina gigas,* of Bering Sea, in which there were no teeth, their place being supplied functionally by the dense, strongly-ridged, horny mouth-plates. Premaxillary rostrum about as long as the anterior narial aperture, and moderately deflected. Vertebrae: C 7, D 19, L and C 34-37. Head very small in proportion to the body. Tail with two lateral pointed lobes. Front limbs small and truncated. Skin naked and covered with a thick, hard, rugged, bark-like epidermis. Stomach without caecal appendages to the pyloric cavity. Caecum simple. See Rhytina.

*Extinct Sirenia.—*In past times the Sirenia were represented by a number of extinct generic types ranging over all the temperate and probably tropical regions, and extending from the Pliocene to the Eocene epoch. In the Pliocene of Europe the group is represented by *Felsinotherium,* in the Miocene by *Metaxytherium,* and in the Oligocene by *Halitherium;* the latter having an acetabular cavity to the pelvis and a rudimentary femur. From *Halitheriun,* which has a somewhat maniti-like dentition, although there are few cheek-teeth, there is a transition through the other two genera to *Halicore Fetsinotherium* having a large pair of tusk-like upper teeth. In *Halitherium* milk-molars were developed. In *Miosiren,* of the Belgian Miocene, the teeth were differentiated into i. 1/1, p. J,m. J. Remains of several early types of sirenians have been obtained from the Eocene deposits of Egypt. The least generalized of these is *Eosiren,* an animal differing from the modern forms chiefly by the retention of traces of the second and third pairs of incisors and of the