

The milk tusks of the dugong have hitherto been mistaken for its permanent tusks, the appearance of which is unknown, since no full-grown skull has hitherto been examined. The grinding teeth differ from those of any other known animal: they consist of a double cone, the external crust of which is not enamel, and covers an interior harder coat; the bulk of the tooth consisting of soft ivory, so that in wearing down, these teeth will be formed into a concave surface.

The organ of hearing presents a peculiarity, says the author, unknown in any other tribe of animals; the malleus and incus being fastened to the sides of the tympanum by a bony substance extending across the intervening space; the stapes is opposed to, but not connected with the foramen of the incus; the handle of the malleus projects in the centre of the circle over which the membrana tympani had been spread, so that in the perfect animal it is doubtless attached to the centre of the membrane.

The habits of the dugong being allied to those of the hippopotamus, Sir Everard was induced to examine how far this peculiarity of structure might exist in the latter animal; it is, however, perfectly different, the ossicula in the ear of the hippopotamus being separate, and readily dropping out of the cavity of the tympanum. The ossicula of the hippopotamus are small compared with the size of the animal; but the cochlea makes two turns and a half, which is uncommon. The semicircular canals present no apparent peculiarity. In the dugong the semicircular canals are extremely small, as is the cochlea, which only makes one turn and a half.

The peculiar bony union of the ossicula of the ear with the skull renders it probable that this animal is more indebted for its hearing, than any other that lives in the water, to the vibrations received by the bones of the skull being communicated to the ossicula, and thence to the cochlea and canals.

*Upon the different Qualities of the Alburnum of Spring and Winter-felled Oak Trees.* By Thomas Andrew Knight, Esq. F.R.S. Read April 20, 1820. [*Phil. Trans.* 1820, p. 156.]

It has long been believed that oak timber felled in winter is superior to that felled in spring; but the cause of the superiority has not been inquired into, and the practice of winter-felling has been discontinued, in consequence of the superior value of the spring bark.

In the spring of 1817, the author selected two oak trees, not quite a century old, and growing near each other: the one was barked and suffered to remain standing; the other felled, and being immediately stripped of bark, was placed in a situation protected from sun and rain. The following December, the other tree, still alive, was cut down, placed in the same situation, and pieces of each, from similar parts, were subjected to the following experiments, at different subsequent periods.

The specific gravity of the spring-felled alburnum was 0·666; that of the winter-felled, 0·565. Equal blocks of each alburnum were cleaved into thin pieces; and, when perfectly dry, suspended in a damp room for ten days. One thousand grains of the alburnum of the spring-felled tree gained 162 grains, and of the winter-felled 145; so that there is an obvious difference in the properties of the two; and Mr. Knight doubts not, by taking the bark off in the spring, and not felling the tree till winter, that the timber would be materially improved. He also thinks that these observations are applicable to the heart wood as well as to the alburnum, though he has not at present any very conclusive evidence to offer on that subject.

*On the Mode of Formation of the Canal for containing the Spinal Marrow, and on the Form of the Fins (if they deserve that name) of the Proteo-Saurus. By Sir Everard Home, Bart. V.P.R.S. Read May 4, 1820. [Phil. Trans. 1820, p. 159.]*

The structure of the vertebræ of the Proteo-saurus is intermediate between that of the lizard tribe and cartilaginous fishes, and they have so close a resemblance to the vertebræ of the shark, as often to have been mistaken for them. They are composed of bone, and have a body and canal for the spinal marrow, and a process for the attachment of muscles; but the body is made up of one piece, while the spinal process, and two lateral branches which belong to it, are made up of another; between these there is no union but a species of joint peculiar to themselves; the hole in the middle thus formed appears unusually small.

In the specimen from which the above description is taken, there is also a fore foot, paddle, or fin,—for it is difficult to say which it should be called,—and which, though not quite perfect, is more so than in any other extant specimen. It presents nothing like the thumb or claw for laying hold, which distinguishes the animals that occasionally inhabit the sea, and come ashore to lay eggs or deposit young. If it be called a fin, it is to be understood as made up of bony materials, the joints of which are extremely numerous, so that it may possibly perform the same office.

An illustrative drawing accompanies this paper.

*Some Experiments on the Fungi which constitute the Colouring Matter of the Red Snow discovered in Baffin's Bay. By Francis Bauer, Esq. F.L.S. In a Letter addressed to the Right Hon. Sir Joseph Banks, Bart. G.C.B. P.R.S. &c. &c. Read May 11, 1820. [Phil. Trans. 1820, p. 165.]*

To ascertain whether the fungi mentioned in the title of this paper vegetate in the snow, Mr. Bauer put a small portion of them into a phial filled with compressed snow, and placed in the open air in a N.W. aspect. In fifty-two hours they had formed a red sediment; and the snow being thawed the water was poured off, and a fresh