

trary, punctures, dimples, and a poor appearance of the luminous clouds, the absence of ridges, nodules, large openings, and flats, denote a spare emission of heat, and may induce us to expect severe seasons.

Pursuing this last idea, Dr. Herschel subjoins, at the end of his paper, a comparative view of the best accounts that are to be met with of the appearances of the sun at particular periods as far back as the middle of the seventeenth century, with the state of the seasons during the same periods. Of the latter, the best information could only be gathered from the state of vegetation, particularly of corn, of the price of which registers have been kept many years back : and though this price be by no means an accurate criterion of the quantity of corn produced, yet it is recurred to as the least objectionable that could be obtained. The result of this review actually leads to the conclusion, that the price of wheat has constantly risen during the time the sun has been without spots ; and that it has always fallen when those spots began to re-appear.

The Doctor seems aware of some fallacy in this mode of argumentation ; but he adds some hints by which several of the objections might, he thinks, be obviated.

*Observations on the Structure, and Mode of Growth, of the grinding Teeth of the Wild Boar, and Animal incognitum.* By Everard Home, Esq. F.R.S. Read May 7, 1801. [*Phil. Trans.* 1801, p. 319.]

The author on a former occasion laid before the Society an account of certain peculiarities in the growth of the grinding teeth of the *Sus æthiopicus*, and pointed out the similarity of their structure to that of the elephant. Having since discovered that a like resemblance extends also to the dentition of the wild boar, though in a less degree, and at a later period of life, he is pleased to communicate to the Society, in his present paper, some further remarks on this curious subject.

We here learn, that in the species of the *Sus*, the first or temporary grinders are sixteen in number ; viz. four in each side of the upper, and as many in the under jaw ; that these are shed in the usual manner ; and that their places are supplied by larger teeth, rising from the substance of the jaw, immediately under the old ones ; that before these first teeth are shed, one of the more permanent grinders is formed in the posterior part of each jaw, which, although it be in its place with the first set, is yet to be considered as belonging to the second ; that besides these five teeth, the rudiments of a sixth are formed in each jaw, which afterwards grows larger than the preceding ones, the jaw increasing in size, so as to make room for this as the posterior grinder ; that this tooth, when perfect, is double the size of the other grinders, its masticating surface having eight fangs, so that it very much resembles two large grinding teeth incorporated into one ; that, in time, the rudiments of a seventh tooth

appear in each jaw, but that the further progress of these could not be observed, none of the specimens the author has had opportunities of inspecting, appearing to be more than seven years old.

Mr. Home proceeds next to observe, that the elephant, the *Sus æthiopicus*, and the wild boar, are the only recent animals in which he has hitherto met with so extensive a masticating surface of the grinding teeth; the human species only excepted, in which the mode of dentition is somewhat upon the same principle as that of the wild boar, with this difference, that the hindmost teeth, called, from the late period of life at which they cut the gum, *Dentes Sapientiæ*, do not exceed the others in size, and have often not sufficient room in the jaw to come into their regular place. A conjecture is hence derived, that when the period of man's life was longer than it is at present, the growth of the posterior part of the jaw was continued for a greater length of time, so as not only to make room for the present, but perhaps also to admit of a succession of a still greater number of additional grinders.

Upon comparing the grinders of the boar with the large fossil teeth found on the banks of the Ohio, they were found so much alike, both in their external appearance and internal structure, as to render it more than probable that they are teeth of the same kind, only differing in size. Not so, however, those of the fossil skeleton some time since found in South America, and described by M. Cuvier. These were found so unlike those of the boar, or the above-mentioned incognitum, as to leave no doubt of its being an animal of a different genus.

From the progressive mode of dentition above described, it is inferred, that the animals to which it appears to be peculiar, have by nature been intended for great longevity. This we know to be the case in the elephant: and though opportunities have not yet offered for ascertaining the term of life of the wild boar, some quotations from ancient authors are here adduced, which indicate that boars of enormous size have at different times existed; whence the probability is inferred that their bulk must have been the growth of many years.

*Account of some Experiments on the Ascent of the Sap in Trees. In a Letter from Thomas Andrew Knight, Esq. to the Right Hon. Sir Joseph Banks, Bart. K.B. P.R.S. Read May 14, 1801. [Phil. Trans. 1801, p. 333.]*

The author prefaces his paper by declaring that the cause of the ascent of the sap in trees appearing to him not to have been as yet satisfactorily accounted for, he resolved to enter on an experimental inquiry on the subject; and that having met with some facts of which he had found no mention in any author, he flattered himself an account of them might not be unacceptable to the Society.

The first experiments were made with a view to determine whether the sap does actually, as has been thought by some, ascend along