

they seem to consider the vernacular unsuitable even for the simplest forms of spicules. As an illustration of the peculiar language current amongst leading spongiologists the following description of a simple spicule is taken from one of the "Challenger" Reports on Sponges:—"Tylotoxea. The esactine of the rhabdus is tylote and the ecactine oxenate." It will hardly be believed then when interpreted into English this sentence only means that the spicule is pin-shaped, having a knob or head at one end and tapering to a point at the other. The true interests of science are hardly likely to be advanced by such a pedantic employment of Greek, but it is a very effectual method of darkening knowledge and restricting it to a very select circle of Illuminati. We do not in the least wish to impute that Dr. Rauff or other authors use the Greek with such a purpose; they will probably allege that only in this way can a scientific nomenclature be obtained.

In conclusion we desire to express our hearty appreciation of the thoroughness and accuracy of Dr. Rauff's work and of the service he is rendering to palæontology; and we anticipate with much interest the appearance of the remaining portions of this Monograph.

CORRESPONDENCE.

CONCENTRIC LAMINATION AMONGST THE PEBBLES ON NORTHAM RIDGE.

SIR,—Owing to an insufficient index I unfortunately missed Mr. Townshend Hall's paper on the above subject in the "Transactions of the Devonshire Association," vol. iv. p. 433. Mr. Hall maintains that the lamination "has been produced by the effects of the long-continued hammering and pounding which the pebbles have received one from the other." While regretting my oversight, I cannot but rejoice that these curious cases of lamination by pressure in the form of percussion have been so well attested.

A. R. HUNT.

TORQUAY, Oct. 10th, 1893.

OBITUARY.

EDWARD CHARLESWORTH, F.G.S.

BORN SEPTEMBER 5TH, 1813.

DIED JULY 28TH, 1893.

THERE has lately passed away from the geological ranks one who for many years was a prominent figure at the meetings of the Geological Society and the Geologists' Association.

Edward Charlesworth was born at Clapham, Surrey, on the 5th September, 1813. He was the eldest son of the Rev. John Charlesworth, M.A., rector of St. Mildred's, Bread Street, London, and grandson of the Rev. John Charlesworth, a Fellow of Trinity College, Cambridge, and vicar of Ossington.

Mr. Charlesworth's father was much interested in geology, through the influence of Prof. Lambert, and at an early age he imbibed a strong taste for collecting fossils, which became the ruling passion of his life.

He was educated at a private school by the Rev. W. Kitchin, rector of Nedging and Norton, Suffolk, and father of the present

Dean of Winchester. At an early age he was articled to an eminent London physician and later on entered Guy's Hospital as a student; but, having a distaste for medicine, he abandoned it and turned his attention to scientific subjects, especially to geology.

When only 22 years of age he published a masterly paper "On the Crag-formation and its Organic Remains" (*Phil. Mag.* vol. vii. 1835, pp. 81-94). He therein pointed out that the Crag of Suffolk was divisible into two parts, which he termed respectively the "Coralline" and the "Red Crag." These divisions were accepted by Lyell, and they have now become permanently established. He subsequently pointed out that the Crag of Norfolk formed a newer division, which he named the "Mammaliferous Crag"; but to this bed the term "Norwich Crag" is now generally applied.

In 1835 Mr. Charlesworth was elected a Fellow of the Geological Society of London, and remained a Fellow up to the time of his death—nearly sixty years.

In the same year (1835) he was elected an Honorary Curator of the Ipswich Museum, where some of his early collections of Crag fossils are still preserved. He read a paper "On the remains of Vertebrate animals found in the Tertiary beds of Norfolk and Suffolk" before the Geological Section of the British Association at Bristol, in 1836, presided over by Prof. Dr. Buckland. In the same year he obtained an appointment on the staff of the British Museum. In 1837 Mr. Charlesworth was appointed an Assistant to the Museum of the Zoological Society of London, in Leicester Square; he also succeeded Loudon as Editor of the "Magazine of Natural History," which he continued to conduct until 1840. At this time he contributed several papers, on the comparative age of Tertiary deposits; on *Voluta Lamberti*; on *Terebratula variabilis*; and on the teeth of *Carcharodon megalodon* from the Crag, etc.

In 1840 he left England to take charge of a young gentleman of fortune and travel with him through Central America. At this time he occupied himself in patenting an "elevator gun," which he believed to be indispensable for the naturalist and explorer abroad, and hoped to see adopted also for the British army. Twenty years later an enterprising American, Mr. Pomeroy Button, of Cheapside, obtained for it, by advertising extensively, an ephemeral success of a few months and a temporary accession of capital to its inventor; but it was of too brief duration to lead on to fortune.

On returning to England Edward Charlesworth was, in 1844, appointed successor to Prof. John Phillips, as Curator to the Yorkshire Philosophical Society's Museum in York, a post which he held until 1858. In 1846 he brought out the "London Geological Journal," which contained most valuable contributions from the leading palæontologists of the day, and occasionally strong and useful critiques on some of their published facts and opinions. This publication was profusely illustrated by plates; but unfortunately it only extended to three numbers and ceased in 1847.

In this MAGAZINE he contributed a valuable paper on the occurrence of flint in the pulp-cavity of a tooth of *Mosasaurus*.

On Mr. Charlesworth's retirement from York, in 1858, he settled for a time in London, and carried on a Natural History and Geological Agency; but his predilection for the Suffolk Crag caused him to spend much of his time in the Orford, Sutton, and Woodbridge districts in search of fossils. In this he was largely aided by his kind friends, Mr. William Colchester, F.G.S., then of Grundisburgh Hall, near Woodbridge, and Mr. Searles V. Wood, F.G.S., and his son Mr. Searles V. Wood, jun. Encouraged and supported by Mr. William Reed, of York, Edward Charlesworth was, for many years, one of the most active buyers of fossils in London; always seeking to secure the best specimens and paying the highest price for them. In fact, he devoted himself almost solely to the purchase of specimens for Mr. Reed and the British Museum; and the "Reed Room" in the York Museum, and the National Collection, both contain numerous evidences of his keen powers as a collector, especially of the fossils of the Crag District. He was the first naturalist to introduce glass-topped boxes into use in museums for the preservation of delicate specimens, and he set up a manufactory of round glass-topped boxes on a large scale. But it must be confessed that he did not succeed as a man of business, owing to the absence of training in early life. Some of his scientific papers are most excellent, and, as a speaker, he was possessed of great fluency and keen powers of argument. He seldom appeared at a scientific meeting in which he did not take part in the discussion, and, if possible, divert it to the Suffolk Crag, the formation of flint, or some other of his pet theories, about which he never grew tired of collecting evidence and challenging inquiry among his brother geologists.

One of his most recent papers was upon flints, and was communicated to the Victoria Institute.

Mr. Charlesworth was greatly interested in the "Oaths Bill"—especially in reference to the swearing of children whose evidence had to be given in Courts of Justice—a practice he was instrumental in getting abolished. He also took an active part in the establishment of the "Society for the Prevention of Cruelty to Children." His sister, Miss M. L. Charlesworth, wrote the story of "Ministering Children," one of the most widely-circulated children's books ever written.

The Royal Society gives a list of 28 papers on scientific subjects, published by Edward Charlesworth; but he printed and circulated at his own expense an immense number of pamphlets on various social and other subjects, and as a correspondent he probably will never be surpassed for the abundance and length of his letters. Referring to his wonderful powers as a speaker, the Rev. William Vernon Harcourt (founder of the British Association) is reported to have said of him ("York Herald," February 7, 1857): "Mr. Charlesworth has shown us that he is not only intimately acquainted with extinct creatures, but that he has a knowledge of, and knows how to influence, the living creation."

He died at his residence at Saffron Walden, after a comparatively short illness, on the 28th July, at the age of eighty years.

H. W.