lites of the former genus; in all other respects, the resemblance between the two genera is very close.

The absence of connecting processes, the mural pores, and the open character of the central tube, sufficiently distinguish *Syringolites* from *Syringopora*.

SYRINGOLITES HURONENSIS, sp. nov.

Besides the above-mentioned generic characters, it may be added that the upper surface of the corallum is nearly flat; the walls of the corallites are well defined, and occasionally possess a wavy outline. The calice formed by the uppermost tabula is moderately deep, and gradually slopes from the sides to the central tube. The corallites are of generally uniform size, about one line in diameter, the central tube is about $\frac{3}{8}$ line wide, and the tabulæ are about $\frac{1}{2}$ line apart. There are on the upper surfaces of the tabulæ about twelve complete rows of septal tubercles or spines extending from the sides of the corallites to the central tube, and between these are incomplete rows, which only reach part of the distance. The central tube is of nearly uniform diameter throughout. The mural pores occur at irregular intervals, and appear to alternate with each other.

The specimens are all silicified and free from the dolomitic matrix, so that their characters are very distinctly shown. Not infrequently the central tube has been filled up with silica, and in this condition it presents the appearance of a solid columella, for which it might be mistaken.

Formation and Locality.—Not uncommon in the Niagara dolomite (Wenlock), near Manitouwaning, Great Manitoulin Island, Lake Huron.

III.—ON SOME RECENTLY DISCOVERED TEETH OF *Oribos moschatus*, FROM CRAYFORD, KENT.

By WILLIAM DAVIES, F.G.S.,
of the British Museum.

THE great geological interest which attaches to the fossil remains of the Musk-ox or Sheep (*Oribos moschatus*, Blainv.), found in British Pleistocene deposits, and the few instances hitherto recorded of their occurrence (together with a recent discovery brought to my notice), have suggested to me the desirability of a brief enumeration of them.

They consist respectively of a portion of a skull, from the low-level Thames gravel, near Maidenhead, first described by Prof. Owen;¹ a fragment of a skull from the gravels of Green Street Green, near Bromley, Kent; both of which are preserved in the British Museum; "fragments of the skulls of a male and female, from the gravels of the Avon at Freshford, near Bath;" a "basal portion of a skull obtained from the gravel of Barnwood, near Gloucester;" and, "a nasal bone, a tibia, and an astragalus, from the low-level gravels of Fisherton," near Salisbury; and, lastly, "the head of a fine bull, wanting the facial bones, discovered and exhumed by Prof. Boyd Dawkins, from the lower

¹ *Bubalus moschatus*, Owen; Quart. Journ. Geol. Soc. vol. xii. (1855), p. 124.

brick-earths of the Thames Valley, at Crayford, Kent.¹ Of these nine specimens, six are fortunately characteristic portions of the skull, these being the most important factors in the verification of the species, and its authentication as a British fossil. Nevertheless, its remains are so rare, that any new discovery of characteristic fragments which add to the evidence are of sufficient scientific value to be placed upon record; and such evidence is afforded by the discovery of the molars of a mandibular ramus, which I detected amongst a series of miscellaneous mammalian remains, recently obtained from the brick-earth at Crayford, and which were submitted to me for examination by my friend, Robert Cheadle, Esq., F.G.S.

The specimens consist of the three true molars and the fourth premolar of the right side. They were found *in situ* in the jaw, but unfortunately the bone was too decomposed and friable to be preserved. The first molar is imperfect, the others are entire and in good preservation, and they belonged to a large and fully mature animal, the last lobe of the third molar having just come into wear. They greatly resemble in their general form and characters the teeth of *Ovis* and *Capra*, inasmuch as they have no supplementary lobe in the external valleys of each molar, in their simpler structure, and in being much more compressed laterally, than are the teeth of *Bos* or *Bubalus*.

That they belonged to an individual of large size is inferred from the measurements of the teeth as compared with the teeth in a lower jaw of a recent Musk-ox, of about the same age, in the British Museum (612 *f*), and with which, excepting size, they agree in all essential characters. These measurements in inches and tenths, are as follows:—Combined length of series of four last molars *in situ*—Fossil, 5·6; Recent, 4·5. Measurements of teeth, separately:

	FOSSIL.				RECENT.			
	M. III.	M. II.	M. I.	P.M. M.	M. III.	M. II.	M. I.	P.M. IV.
Antero-posterior length	1·85	1·4	1·1	0·85	1·6	1·12	0·9	0·8
Transverse diameter of anterior lobe	0·75	0·78	0·75	0·5	0·6	0·6	0·59	0·45
Do. do. second lobe	0·64	0·73	0·7	0·44	0·5	0·58	0·57	0·41
Do. do. third lobe	0·35				0·32			

The recent jaw I assume to be the specimen from which Prof. Boyd Dawkins obtained the measurements given in his Monograph (*op. cit.* p. 13), as they exactly coincide with those given above, taken by myself.

With regard to the position in the brick-earth, Mr. Cheadle informs me that the teeth were found in the well-known chalk-pit

¹ See an exhaustive memoir upon the osteology, geographical range, and geological distribution of this interesting Arctic animal, by Professor Boyd Dawkins, F.R.S., "Pleistocene Mammalia," Part V. (*Ovibos moschatus*); in the Monographs of the Palæontographical Society for 1872.

through the tunnel, and in the clay near the zone of the "*Cyræna* bed." This, although in the same deposit, would be at a higher level than that of the skull already mentioned, and, therefore, cannot be supposed to have belonged to it. The deposit is rich in remains of Mammalia, both of extinct and still existing species; the teeth and bones of Elephants, Oxen, Deer, and the Horse predominating; those of the Rhinoceros (three species), although frequent, are far less common; whilst the remains of Carnivora are rare.

Whether these brick-earths are Pre-glacial, as Prof. Dawkins supposes them to be, or, as more generally considered by geologists, belong to a later period than the true Glacial epoch, they contain, curiously commingled, the *débris* of animals which were respectively inhabitants of temperate and of rigorous climes. The species, excluding the Invertebrata, whose remains are recorded as having been found at Crayford, are the following:—

Ursus ferox, Linn.
 " *arctos*, Linn.
Felis spelæa, Goldf.
Hyæna spelæa, Goldf.
Canis lupus, Linn.
Bison priscus, Ow.
Bos primigenius, Boj.
Oribos moschatus, Blainv.
Megaceros Hibernicus, Ow.

Cervus elaphus, Linn.
Elephas antiquus, Falc.
 " *primigenius*, Blum.
Equus fossilis, Mey.
Rhinoceros tichorhinus, Cuv.
 " *leptorhinus*, Ow.
 " *megarhinus*, Christ.
Arvicola amphibius, Desm.
Spermophilus erythrogenoides, Falc.

The fossil remains of the Musk-ox are as equally rare in the Upper Tertiaries of the European continent as in England. Prof. Dawkins cites three localities in France, and four in Germany, where its remains have been discovered. They have also been found in three places in Siberia; and also in the frozen mud cliffs of Eschscholtz Bay, on the coast of Arctic America, but nowhere abundantly; and only in one instance, and that a single tooth, "in the gravel of the Oise," near Chauny, France, have the teeth, previously to those here described, been found. It is assumed, on account of the paucity of its remains in Europe, that it was only an occasional wanderer so far south of its usual habitats.

The distribution of the existing Musk-ox is at present limited to the barren lands of Polar America, between the 60th and 83rd parallels of latitude. During the late Arctic Expedition a fine bull was shot near the coast of Grinnell Land, in latitude 82° 27'; the stuffed skin of which is exhibited in the National Collection.

IV.—THE GLACIAL PERIOD IN EASTERN AMERICA.

By Prof. C. H. HITCHCOCK.

RECENT studies of the glacial phenomena as exhibited in the State of New Hampshire and adjoining regions enable us to maintain the following propositions.

1. The ice-sheet at the time of its maximum development passed south-easterly over all New England, New Brunswick and Nova Scotia. It came from the St. Lawrence Valley, where all the