FIG. 3. *Pontocypris pyriformis*, sp. nov.; *a*, left valve; *b*, edge view; *c*, end view.
FIG. 4. *Cypris Dawsoni*, sp. nov.; *a*, left valve; *b*, edge view; *c*, end view.
FIG. 5. *Ilyocypris oblonga*, sp. nov.; *a*, right valve; *b*, edge view; *c*, end view.
FIG. 6. *Cythere*, sp. indeterminate. Two valves, imperfect.
FIG. 7. *Candona*? *Sanctæ-Mariæ*, sp. nov.; *a*, left valve; *b*, edge view; *c*, end view.
FIG. 8. *Cytherella crucifera*, sp. nov.; *a*, right valve; *b*, edge view; *c*, end view.
FIG. 9. *Candona* (?), sp. indeterminate. Dorsal aspect.

II. Loose block.
III. North Branch, Milk River.
IV. Old-Man River.

Saint-Mary-River Beds.

NOTICES OF MEMOIRS.

A DESCRIPTION OF THE SO-CALLED SALMONOID FISHES OF THE ENGLISH CHALK. By A. SMITH WOODWARD, F.G.S.[1]

OF English Cretaceous fishes three genera (*Osmeroides*, *Aulolepis*, and *Acrognathus*) are commonly assigned to the Salmonidæ. None have hitherto been described in detail, and the present paper is intended to give a full account of the osteology of the two first-mentioned genera, so far as the best specimens will allow. Nothing new has been discovered in reference to *Acrognathus*.

Osmeroides Lewesiensis is proved by several specimens in the British Museum to possess a large, though very thin gular plate between the rami of the mandible. The branchiostegal rays are numerous, and the opercular apparatus is complete. The marginal teeth are extremely minute and clustered in both jaws. The maxilla is arched, exhibiting a convex oral margin, and overlapped above by two large supramaxillaries, shaped as in the herrings. The parietal bones meet in the median line, excluding the supraoccipital from the cranial roof. Thin plates completely cover the cheek. Intermuscular bones appear to be present in the abdominal region.

The type skull of *Osmeroides crassus* (Dixon) is now described for the first time, and proved to be generically distinct from *O. Lewesiensis*. It has large, well-spaced conical teeth, and so much resembles the skull of *Elopopsis*, not hitherto recorded from the English Cretaceous, that the fossil may be provisionally assigned to this genus.

Aulolepis typus agrees with *Osmeroides Lewesiensis* in the possession of a large gular plate, the meeting of the parietal bones, the very small size of the teeth, and the form of the supramaxillaries. It is remarkable for the advanced situation of the pelvic fins, and for the prominent ridge produced by the "lateral line" on the scales of the caudal region.

In determining the systematic position of these fishes from the English Chalk, it is, of course, impossible to refer to the most

[1] Abstract of a paper read before the Zoological Society, November 20, 1894.

distinctive external feature by which Salmonoids can be separated from Clupeoids. The nature of the matrix would not admit of the preservation of an adipose dorsal fin, even if it were originally well developed. Three osteological characters of *Osmeroides* and *Aulolepis*, however, now made known for the first time, combine to suggest comparisons only in one direction, namely, with the modern genera *Elops*, *Megalops*, and their extinct allies. These characters are (i.) the union of the parietal bones mesially to the exclusion of the supraoccipital from the cranial roof; (ii.) the arched maxilla overlapped above by two larger supramaxillary bones; and (iii.) the presence of a large gular plate. It is true that although in the typical Salmonidæ the supraoccipital separates the parietals on the cranial roof, there are rare instances (e.g. *Thymallus*) in which the parietals are in contact throughout their length. Further, it is known that the double supramaxilla is not quite constant in the Clupeoides, Elopines, and their allies. It may also be argued that as Dr. Günther admits to the Clupidæ living fishes with a gular plate (*Elops*, *Megalops*), there is no reason for excluding from the Salmonidæ any primitive fishes which differ only from the living members of this family in the possession of such a plate. Nevertheless, so far as the present writer is aware, supramaxillaries of the form described above in *Osmeroides* and *Aulolepis* have not hitherto been observed in any Salmonoid, while they are the most common feature among Clupeoids and Elopines. The two Cretaceous genera under discussion may therefore be provisionally associated with the latter. The fishes named *Osmeroides* from the Chalk of Mount Lebanon may also be placed here, for they likewise exhibit a large gular plate; and *Elopopsis* is already assigned to the same systematic position by common consent. *Elops* and *Megalops*, indeed, have many more close allies in Cretaceous and early Tertiary strata than has hitherto been suspected, and the type they represent seems to have been dominant among the earliest Physostomi.

REVIEWS.

I.—The Great Ice Age and its Relation to the Antiquity of Man. By James Geikie, LL.D., D.C.L., F.R.S., etc. Third Edition, largely re-written. 8vo. pp. xxviii. and 850; Maps and Charts xviii.; Woodcuts 78, and Frontispiece. (London: Edward Stanford, 1894.)

THE long interval of seventeen years which has elapsed since the second edition of this work was published, must not be taken as an index that the subject of the "Great Ice Age" has during this period lost its interest with geologists or with the public generally, for the number of workers in this branch of geological investigation, and the amount of literature on it which is constantly appearing, seem to be alike on the increase, though not, perhaps, of late years so markedly in this country as in Germany and in the United States. Readers of this Magazine are well aware of the persistent frequency with which glacial subjects are brought forward