and the Bruxellian of Woluwe St. Lambert. The New Zealand species may be distinguished from this one by its larger size, more acuminate apex, and by a slight lateral projection from the base of the crown. The Napier series, from which it was obtained, occupies a much higher horizon than the Baltringen Molasse; by the Survey they are considered to be the Upper beds of the Pliocene, whilst Professor Hutton tabulates them as Pleistocene. They underlie the dispersed gravels and peat mosses, the latter containing the bones of the recently extinct Moa. Though the existence of *Scymnus* is unknown in the southern seas, its fossil remains in these beds indicate that its extinction has happened during comparatively recent times. It is desirable that the species should be distinguished, and I suggest as the *nomen triviale, Scymnus acutus.*

REFERENCES TO SPECIES PREVIOUSLY DESCRIBED.

Scymnus triangularis. J. Probst. Würth. Jahresb. v. xxxv. p. 175, pl. iii. figs. 35, 36 (1879). Molasse, Baltringen, Wurtemberg.

S. majori. R. Lawley. Nuovi Studi sopra ai Pesci, etc., p. 38, pl. i. fig. 17 (1876). Pliocene, Tuscany.

S. trituratus. J. Probst. Würth. Jahresb. v. xxxv. p. 176 (1879).

F. Noetling. Sitzb. Ges. Naturf. Freunde Berlin, 1886, p. 17 = *Corax trituratus.*

T. C. Winkler. Archiv. Mus. Teyler, v. iv. fasc. i. p. 27, pl. ii. fig. 13 (1874). Bruxellian, Woluwe St. Lambert, near Brussels.

CHEVINEDGE, HALIFAX.

NOTICES OF MEMOIRS.

I.—PALÆONTOLOGICAL CONTRIBUTIONS TO SELACHIAN MORPHOLOGY.[1]

By A. SMITH WOODWARD, F.Z.S., F.G.S.

THE author discussed two features in Selachian anatomy presented by fossils from the Chalk of Mount Lebanon. An examination of the so-called *Scyllium Sahel-Almæ*, which is certainly a member of the Scylliidæ, shows that the lateral line of this fish was supported by a series of half-rings, exactly like those met with in *Squaloraja* and the Chimæroids—a character apparently hitherto unrecognized among undoubted Selachii. The canal of the lateral line in the Cretaceous fossil was thus presumably an open groove; and only two living Sharks, *Echinorhinus* and *Chlamydoselachus*, both comparatively primitive, have yet been described as exhibiting such a condition. The second discussion related to the pelvic cartilage of *Cyclobatis*, one of the Trygonidæ. It had long been recognized that the pair of anterior processes were the homologues of the so-called "prepubics," and the author now attempted to show that the large bent, lateral processes were dorsally placed, and might thus be regarded as "iliac." It seems not improbable that the reflexed distal extremities of the latter originally supported the metapterygia of the pectoral fins, in the same manner as the propterygia were connected with the antorbital (post-palatine) cartilages.

[1] Proceedings of Zoological Society of London, Feb. 21, 1888.

II.—Unterdevonische Crinoiden. Von Dr. Otto Follmann. Verh. d. nat. Ver. Jahrg. xxxiv. 5 Folge, IV. Bd. pp. 113–138, pls. ii. iii.

THIS paper gives detailed descriptions of a numerous suite of Crinoids collected by Herr B. Stürtz from the Lower Devonian strata of Bundenbach and Gemünden. These fossils are mostly in a pyritized condition, but they have been treated by the same methods which proved so successful with the Asteroidea from the same beds, and many new structural features have been brought to light. The following new species are described and figured:—*Triacrinus elongatus, Calycanthocrinus* (n. g.) *decadactylus, Taxocrinus Stuertzii, T. Grebei, Codiacrinus Schultzei, Ctenocrinus acicularis, C. stellifer,* and *C. rhenanus.* Additional details are likewise given of twelve other species previously described from the same geological horizon.

III.—Discovery of *Elephas primigenius* associated with Flint Implements at Southall. By J. Allen Brown, F.G.S., Geologists' Association, 6th May.

DURING last year some important drainage works were carried out at Southall, and sections were exposed in Windmill Lane, a road running from Greenford, through part of Hanwell, across the Great Western Railway to Woodlake, skirting Osterley Park, as well as in Norwood Lane, leading from Windmill Lane, south-westward.

The remains of the Mammoth were discovered in Norwood Lane, about 550 yards from its junction with Windmill Lane, and at the 88 foot contour. They were embedded in sandy loam, underlying evenly stratified sandy gravel, with a thin deposit of brick-earth about a foot in thickness, surmounting the gravel—in all about 13 feet of river drift above the fossils.

The labourers described the tusks as being found curving across the "shore" or excavation, attached to the skull, parts of which, with the leg-bones, etc., and teeth were exhumed. Other bones were exposed in the side of the cutting.

It is probable that the whole of the remains might have been obtained if they could have been carefully exhumed, and if means had been at hand to remove them, as they were in a soft pulpy condition.

The author obtained many of the bones in a fragmentary state, including parts of the fore limbs and jaw, and portions of the tusks, as well as two of the teeth, which were much better preserved; a third molar was found, but broken to pieces by the labourers. Although many of the bones were when gelatinized too much broken to admit of determination with certainty, they were quite unrolled and the joints and articulations of the leg bones and the teeth were unabraded. There can hardly be a doubt that the bones of the whole of the fore part of the Elephant, if not of the entire skeleton, were in juxtaposition.

Several flint implements were found in Norwood Lane in close

proximity to the remains, and a well-formed spear-head nearly five inches in length, of exactly the same shape as the spear-heads of obsidian until recently in use among the natives of the Admiralty Islands and other savages, was discovered in actual contact with the bones. Smaller spear-head flakes less symmetrically worked were also found at this spot. They are formed for easy insertion into the shafts by thinning out the butt end, similar to those found abundantly by the author at the workshop floor, Acton, and described by him in his lately published work, "Palæolithic Man in N.W. Middlesex." Among the implements found here is an unusually fine specimen of the St. Acheul or pointed type, 8 inches long, of rich ochreous colour and unabraded, and a well-formed lustrous thick oval implement pointed at one extremity, rounded at the other, and also unrolled.

From the adjacent excavations in the Windmill Road several good specimens of Palæolithic work were also obtained, including two dagger implements with heavy unworked butts and incurved sides converging to a long point; these were evidently intended to be used in the hand without hafting. Also a form of instrument characteristic of the older river drift, convex on one side and slightly concave on the other near the point and partly worked at the butt; with these were two rude choppers or axes, two points of implements with old surfaces of fracture, and several flakes. It is remarkable that almost all the principal types of flint implements found in the oldest drift deposits are represented in the collection found in the vicinity of the remains of the Elephant. Mr. J. Allen Brown accounts for the deposit of the remains of the Mammoth and associated human relics at this locality by the fact that the underlying Eocene bed rises to within two or three feet of the surface a few yards west of the spot where the bones and implements were found, while towards the Uxbridge Road and upper part of Windmill Lane, the drift deposits thicken, until at no great distance they have a thickness of 14 to 17 feet. Thus the river-drift rapidly thins out and the upward slope of the London Clay reaches nearly to the surface at about the 90th foot contour, and as the level at which the fossils were found (13 feet from the surface) would represent the extent of the erosion and infilling of the valley which had then taken place, it is probable that the higher ground formed by the up-slope of the London Clay then formed the banks of the ancient river, or if another thick bed of drift should be found still further west, in a depression of the Tertiary bed, such as often occurs. The intervening higher ground would form a small island in the stream, in either case a habitual land surface would be formed, with shallow tranquil waters near the banks, not impinged upon by the currents which subsequently set in this direction as shown by the deposit of coarse stratified gravel above the loamy bed and remains.

The author is thus led to the conclusion that the carcase of the Elephant either drifted into the shallow water near the bank, or else, which seems more probable from the presence of so many

weapons near the spot, including the spear-head, found with the remains, that the animal was pursued into the shallow water by the Palæolithic hunters and there became "bogged." Whatever hypothesis may be accepted, there is no evidence of any greater flood or inundation than would often occur under the severe climatic conditions which prevailed during the long period which intervened between the formation of the higher benches of river drift and that of the mid-terrace, only 25 to 30 feet above the present river, in which the remains of the Mammoth and the extinct Quaternary mammalia are more frequently met with under similar conditions. Nor does there appear to be any more reason for ascribing the extinction of the great Quaternary pachyderms to a sudden catastrophe or cataclysm than there is for the extinction of some other Pleistocene forms, such as the Great Irish Deer; while the difficulty involved in this hypothesis is still further increased by the fact that other animals, such as the Reindeer and Musk-sheep of northern habit, as well as southern forms like the Hippopotamus, were not utterly destroyed with their contemporaries by the same cause, but merely migrated to regions more suited to them, as the climatic and other conditions of this country changed.

REVIEWS.

I.—Introductory Text Book of Geology. By David Page, LL.D., F.G.S. Revised and in great part rewritten by Charles Lapworth, LL.D., F.G.S. Twelfth and enlarged edition. 8vo. pp. 309. (London and Edinburgh, Blackwood & Sons, 1888.)

THE publishers of this work are fortunate in having secured Prof. Lapworth's services in bringing out a new edition of it. While careful to retain the arrangement of the original, and whatever was valuable of its matter, the editor has been bold enough to sweep away all that is cumbrous or obsolete, and sufficiently painstaking to rewrite whole chapters in order to bring them abreast of modern geological thought. The result is that he has produced a book which from its simplicity and clearness will be useful for schools, while the introduction of specific names, the careful attention paid to the derivation and meaning of terms, the alternative tables and fresh points of view brought into the "Recapitulations," the real glimpse (not a mere catalogue) of foreign strata, and the new classification of animals and plants, will restore it to its place as an examination text-book. But beyond and above this, the sections on Petrological geology, on the older Palæozoic or Proterozoic rocks, and last but far from least, those on the Igneous and Metamorphic rocks, are well worthy the attention of specialists in these lines of research. That the improvements are wide-spread as well as concentrated we see from the fact that this edition contains more than 70 additional pages and 50 new illustrations. Many of the old artificial-looking sections are replaced by real ones (like the effective drawing of rock strikes in p. 62 and the map and sections on p. 63) and some of the