

Camp and Oviury; and the week's proceedings concluded with a visit to Stokesay Castle, in which the Rev. James Parker gave an interesting account of the curious old pile. Thanks were most warmly accorded to the Rev. Mr. La Touche and to Prof. Morris for their able conduct of the excursion, and the members then took their departure from the Craven Arms Station, congratulating each other on the very interesting, instructive, and successful character of the visit of the Geologists' Association to Shropshire.

KENT

East Kent Natural History Society, August 1.—A communication was made by Mr. Gulliver, F.R.S., in relation to the shark (*Lamna Cornubica*) taken last November off Rye. As this is the first description of this important skeleton of this huge fish, which may now be seen at the College of Surgeons, we give it at some length. This shark is the Porbeagle of many authors and the Beaumaris Shark of Pennant. Every anatomist knows more or less how an ordinary natural skeleton is made; but as this of the Porbeagle is an extraordinary one, it is well worth while to note some of the means employed in its preparation. In the first instance careful measurements were made of the different appendages, and kept for guidance in regulating their due position, since in the drying there would be much distortion or displacement which could only be corrected by a constant reference to their state in the fresh fish. Then came the question, how to get out the brain; and this it was found could be easily done through a natural opening—a sort of fontanelle—more than an inch in diameter, in the upper and front part of the skull. Next, it was foreseen that, in such a large fish, there would be great shrinking in its length from the contraction by drying of the intervertebral substances, as had happened to the skeleton of this shark at Haslar; and this fault was prevented by the insertion between the bodies of the vertebrae of temporary wedges or plugs of wood. And as the skull and orbits, being cartilaginous, would shrink and curl into a shapeless and ugly mass, unless means could be devised to preserve their form, all these parts were supported by plaster casts, while the foramina were kept open by wooden plugs. In this state six weeks were passed in the drying, although this was often hastened by artificial heat. The plugs and plaster being removed, the skeleton parts were left in their natural form and position, as now so admirably preserved for the instruction of anatomists. The eyes, too, are shown *in situ* without the least shrinking. The spine has been strengthened by a strong cane introduced along the neural canal, and remaining permanently there, but not visible without curious inspection. It is remarkable that there is but little fatty matter in the skeleton. Among the manifold parts of the skeleton are seen, in their natural position, the five pairs of Branchial Arches; the Hyoid Arch with its three pieces on each side, and the Branchiostegous Rays; the Scapular and Pelvic Arches; and, as appendages of the pelvis, the pair of osseous Claspers, each of two pieces and a curious Spine of hard bone, particularly noticed by Prof. Flower, at the free end. The Vertebrae, of which the number has not hitherto been recorded in this species, are, as counted by Prof. Flower and Mr. Gulliver, no less than 152, of which 60 belong to the tail. These caudal vertebrae turn abruptly upwards at an angle of about forty degrees from the straight vertebral column of the trunk, and run straight along the upper border of the superior lobe of this caudal fin. The frame-work of this fin-lobe is chiefly formed of the caudal vertebrae, with their broad and flat inferior spinous processes; the lower lobe of the caudal fin is composed of a densely-packed layer or plate of parallel rays proceeding from above downwards, and apparently of fibro-cartilaginous texture. The vertebral column has no ribs. The Rays of the front Dorsal Fin are distantly jointed; the joints like those of soft-finned bony fishes, but much further apart in each ray; and this is so remarkable in the Pectoral Fins of this fish as to remind us of the digital phalanges of mammalia. Of course, every ichthyologist well knows that the caudal fins of the Plagiostomes are unequal (heterocercal); but it is not so familiarly known that the caudal vertebrae in several of these fishes, and also in some other fishes, pursue a different course. Indeed, the disposition of the caudal vertebrae of osseous and cartilaginous fishes, both in adults and in the different stages of development, affords, as Agassiz and Huxley have recognised, a very interesting subject for more research than has yet been devoted to this branch of ichthyology. Meanwhile we have in this skeleton of the Porbeagle a noble contribution to the osteology of the Selachians.

PARIS

Academy of Sciences, July 22.—A paper was read by Prof. Cayley on the conditions enabling a family of given surfaces to form part of an orthogonal system.—M. A. de Caligny communicated a note on a liquid vein formed in part by a current, and in part by the blows of the waves against two convergent breakwaters.—A note on the vibrations of cords under the influence of a diapason by M. E. Gripon was read.—M. F. Lucas communicated the results of experiments made by him in the Seine during the siege of Paris for the purpose of ascertaining how far the waters of the river would convey sounds which might be employed for telegraphic purposes. He found that the sounds produced by heavy bells were not transmitted more than 1,500 to 1,800 metres.—M. W. de Fouvielle described a new example of the danger caused by large masses of metal during thunderstorms.—M. Le Verrier read a memoir on the masses of the planets and the parallax or the sun, in which he indicated that in the present day the exact determination of these and some collateral matters had become a necessity, and dwelt especially upon the desirableness of a new direct measurement of the velocity of light. Upon this subject MM. Fizeau and d'Abbadie made some remarks.—M. Boussingault communicated a note on the determination of iron in the blood of an invertebrate animal. The animal employed was the common garden slug; its blood contains only 0.00069 per cent. of iron.—A note was read by M. P. Thénard on a new process for the quantitative determination of ozone, and a second by the same author on the action of permanganate of potash or oxygenated water in the midst of a freezing mixture.—M. Sacc presented a memoir on a new process for the preservation of alimentary substances by means of acetate of soda.—M. Berthelot communicated a note on the constitution of acid salts in solution; and MM. P. Champion and H. Pellet a note on the theory of the explosion of detonating compounds.—M. A. Boillot described a process for the preparation of ozone by means of a new mode of production of the electrical effluvia.—M. C. Bernard communicated a further note by M. Oré on M. Liebreich's endeavour to demonstrate that strychnine is an antidote to chloral.—M. C. Robin presented a note by M. Rabuteau on the physiological properties of quinic acid, and on the reduction of perchloride of iron in the organisms; and M. C. Sainte-Claire Deville communicated a letter from M. Diego Franco on the late eruption of Vesuvius.

PAMPHLETS RECEIVED.

ENGLISH.—Cassell's Book of Birds, Part XXIII.—The Lead and Zinc Mines of the Mendip: H. B. Woodward, F.G.S.—What determines Molecular Motion? the Problem of Nature.—The Industrial Monthly, No. 5, Vol. vii.—The Journal of Applied Chemistry, No. 7, Vol. vii.—A Letter to the Most Noble the Marquis of Salisbury on the Public Health Bill: G. W. Child, M.A.—The Building and Ornamental Trades of Great Britain and Foreign Countries: E. Hill—Greville, No. 2: M. C. Cooke.—Proceedings of the Geologists' Association, No. 6, Vol. ii.—The Monthly Microscopical Journal, August.—The Astronomical Register, August.—The Publishers' Circular, August.—Journal of the Chemical Society, July.—The Food Journal, No. 31, Vol. iii.

AMERICAN AND COLONIAL.—The American Chemist, No. 12, Vol. ii.—The Canadian Naturalist, No. 4, Vol. xiii.—The American Naturalist, No. 7, Vol. vi.—The American Journal of Science and Art, No. 18, Vol. iii.—The Cincinnati Medical News, Nos. 5 and 6, Vol. i.—The Indiana Journal of Medicine, Nos. 1 and 2, Vol. iii.—Van Nostrand's Eclectic Engineering Magazine, No. 44, Vol. vii.

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