tunnellings. Mr. Fuller describes his observations upon the behaviour of the winged sexual forms belonging to six different species. He shows that the belief that the aerial migration has for its object the prevention of interbreeding is not necessarily true, since the flights frequently comprise individuals of both sexes which readily pair. This same feature has also been observed by the reviewer in the case of a Himalayan Termite. Intercrossing occurs at times among individuals of different nests, but Mr. Fuller concludes that the real object of the production of sexual forms in such vast numbers is in order to perpetuate the species, which suffers immense mortality during the annual exodus. Some sixty-four pages are devoted to observations on the nest-building habits and general economy of thirteen species of Termites, and details of the various types of nests are well illustrated on the accompanying plates. The remainder of the paper comprises a systematic account of species, chiefly belonging to the genera Hodotermes, Termes, and Eutermes. The characters of the soldiers and workers are well described, but unfortunately no accounts of the winged forms are included, and it is to be hoped that the author will make these the subject of a further memoir.

Mr. J. Hewitt contributes a paper on South African Arachnida, mostly based on specimens in the Albany Museum. Altogether three genera, eleven species, and one variety are recorded as new, and the most interesting feature brought to light is the discovery of two new genera of marine spiders taken near Cape Town. The remainder of the journal is occupied by two short papers by Dr. Warren, one dealing with the tendency of the Saturniid moth, *Melanocera menippe*, Westw., to exhibit parthenogenesis, and the other with an extension of his previous observations upon hybrid cockatoos. A. D. IMMS.

THE CROYDON NATURAL HISTORY SOCIETY.

THE Transactions of the Croydon Natural History and Scientific Society for 1915, a copy of which has just reached us, contain a particularly good paper by Mr. G. M. Davies on the rocks and minerals of the Croydon regional survey area. The paper runs to 44 pages, and includes a careful series of analyses of rock-specimens from the Weald Clay and all the more recent formations. Reference is made to the discovery of the Marsupites-zone of the chalk at Russell Hill, Purley, and to the decomposition of marcasite, which gives rise to the soft masses of hydrated iron oxide ("red ochre") so frequent in the chalk. A few sarsens are noted as occurring in the neighbourhood. Granules and grains of zinc-blende and galena are noted as occurring in fuller's-earth at Redhill and Nutfield. The number of minerals found in residues is somewhat surprising, and a complete list is given. The regional survey, under the direction of Mr. C. C. Fagg, shows satisfactory progress, and in connection with it Baldwin Latham has prepared a map showing the site of the five Bournes which flow in the area.

Mr. William Whitaker describes an extraordinary outlier of Blackheath pebble-beds at Tandridge Hill. With the pebbles are patches of fairly large unworn flints, resembling in shape flints as found in chalk-pits. Flints in any intermediate stage of weathering are not found, and the two cannot have been produced by the same agency. It is thought that, during or after the deposition of the rounded Blackheath beds, the unworn flints have been quietly removed from the chalk during the dissolution of the latter, and left near to their original position. The extension of the outlier so far south is of interest, but especially is it so in that though the uppermost outlier is nearly 800 ft. O.D., the lowest extension is 200 ft. lower, on the face of the escarpment of the chalk. Hence we here find Eocene beds resting on lower chalk, an occurrence unknown elsewhere. The conclusion come to is that long-continued solution of pebble-covered chalk took place on a large scale, and the pebble-beds were very gradually let down. There was no evidence of faulting. It is fairly certain they could not have been originally deposited on the middle and lower chalk as now found.

The usual valuable meteorological statistics for 1915, compiled by Mr. F. Campbell-Bayard, with rainfall day by day from 104 stations, is of value to water-economists. In a paper summarising the fossil records of *Ginkgo biloba* and its ancestors, Mr. E. A. Martin remarks that there has been of late a considerable increase of small specimens of this tree in this country. Hitherto this "living fossil," as Seward calls it, has been represented chiefly by male trees, and it is hoped a balance may be restored now that it is included in florists' catalogues.

THE LAKE VILLAGERS OF GLASTONBURY.[1]

THE Lake Village of Glastonbury consisted of between eighty and ninety round huts surrounded by a stockade, and planted for security at the edge of the sheet of water, that is now represented by the peat in the marshes, extending from Glastonbury westward to the sea. The inhabitants smelted iron and made various edged tools and weapons—axes, adzes, gouges, saws, sickles, bill-hooks, daggers, swords, spears, etc. They also smelted lead ore from the Mendip Hills, and made net-sinkers and spindle-whorls. They probably carried on the manufacture of glass beads and rings and other personal ornaments. They were also workers in tin and bronze. It is likely that the beautiful Glastonbury bowl was made in the settlement, since unused rivets of the same type as those of the bowl have been commonly met with. They were expert spinners and weavers, carpenters and potters, using the lathe in both industries. The discovery of a wooden wheel, with beautifully turned spokes, proves that they possessed wheeled vehicles, while the snaffle-bits of iron imply the use of the horse. Their commerce was carried on partly by land, and the possession of canoes gave them the use of the waterways. They were linked with other settlements by the road running due east from Glastonbury, that formed a part of the network of roads traversing the country in the prehistoric Iron age, more especially with the lead mines and the fortified oppida, or camps, of Mendip and of the rest of the county. They were also linked with the Bristol Channel by a waterway along the line of the river Brue, and along this was free communication with the oppidum of Worlebury, then inhabited by men of their race.

The lake villagers were undoubtedly in touch with their neighbours by sea and by land. Their jet probably came from Yorkshire; their Kimmeridge shale from Dorset; the amber from the eastern counties, or from the amber coast south of the Baltic. The cocks for fighting were probably obtained from Gaul, and the oblong dice are identical with those used in Italy in Roman times. Some of the designs on their pottery are from the south, and the bronze mirrors are probably of Italo-Greek origin. The technique of the

[1] Abridged from a paper read before the Literary and Philosophical Society of Manchester on April 18 by Hon. Prof. W. Boyd Dawkins, F.R.S.

Glastonbury bowl is that of the goldsmiths of Mykenæ. The whole evidence points to a wide intercourse with the other British tribes, as well as to a commerce with those of the Continent, extending so far south as the highly civilised peoples of the Mediterranean. It falls in line with that offered by other discoveries recorded in other parts of Britain, in settlements and tombs, by General Pitt-Rivers, Sir Arthur J. Evans, and others, proving that the inhabitants of Britain were highly civilised, and were not isolated from the high Mediterranean culture for some two hundred years before the Roman conquest.

We may infer from the absence of Roman remains that the lake village was abandoned before the influence of Rome was felt in Somerset. All doubt, however, as to this point is removed by the recent explorations of Wookey Hole Cavern, where the group of objects in the lake villages was found in five well-defined layers underneath two superficial strata of Roman age, the latter being dated by the coins, ranging from the time of Vespasian (A.D. 69–79) to Valentinian II. (A.D. 375–392). Here we have proof that the civilisation of the prehistoric Iron age was pre-Roman, and that it ended in Somerset with the Roman conquest. It has been traced in other parts of Britain so far back as 150 to 200 B.C.

The lake villagers were of pure Iberic stock, without admixture with other races. They belong to the small aborigines in Britain in the Neolithic age, characterised by long or oval heads, who were conquered in the Bronze age by the invading Goidels, and in the prehistoric Iron age by the invading Brythons, both of whom have left their mark in the topography of the district, by river names, such as the Axe (Goidelic) and the Avon (Brythonic for water), and hill names, such as Dundry dun (Goid)=fort, Mendips Maen (Bryth)=stone, Pen (Bryth)=hill. From these it may be concluded that the language spoken by the lake villagers was closely allied to the Welsh. They were closely related to the Silures, the ruling tribe in South Wales at the time of the Roman conquest.

The village was sacked, and, as the skulls exhibited show, the inhabitants had been massacred, probably during the conquest of that region by the Belgic tribes, whose further progress was arrested by the Romans. This remarkable discovery is being followed up by the examination of another lake village at Meare, on the same waterway, and belonging to the same pre-Roman age. The first volume was published in 1911, and the second is now nearly completed. When the whole story is told, by Bulleid and Gray and the other contributors to "The Lake Village of Glastonbury," it will fill a blank in the prehistory of Britain, and form a sound basis for history.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

MR. T. E. GORDON has been appointed professor of surgery in Trinity College, Dublin, in succession to Prof. E. H. Taylor.

THE Astley Cooper prize for the present year, for a treatise on "The Physiology and Pathology of the Pituitary Body," has been awarded to Dr. W. Blair Bell, of Liverpool.

DR. T. G. MOORHEAD (Captain, R.A.M.C.) has been elected professor of the practice of medicine in the school of the Royal College of Surgeons in Ireland, in the place of Sir John Moore, retired

EFFORTS are being made by the Kansas State Board to get the State universities to co-operate in an endeavour to induce the Government to establish a health experiment and research laboratory in connection with each university school of medicine under the U.S. Public Health Service.

THE Board of Education has recently issued an interesting Memorandum on the teaching of coal-mining in part-time schools (Circular 953; price 4*d*.), upon lines which constitute a departure to some extent from the methods of teaching coal-mining students that have hitherto obtained, in that they definitely recognise the principle already tacitly admitted by some of the most experienced teachers of mining, namely, that the subject in which coal-mining students least need instruction is that of coal-mining. The coal-mining communities may to-day claim to rank amongst the most intelligent of our working classes, a condition of things due largely to the fact that a man is required to pass a written examination before he can enter the ranks of the higher colliery officials. All British coal-fields have accordingly arranged some system of mining tuition, and the object of the present Memorandum is to co-ordinate these, and to base the methods of instruction upon sound principles. The insistence upon a scientific training as the basis of all mining education is a welcome feature of this Memorandum, and there can be no doubt that its general adoption will prove useful. It is perhaps legitimate to regret that its wording is in places open to misconstruction; thus the expression "practical mathematics" is here used in the sense of elementary mathematics applied to practical purposes, instead of in its generally adopted sense; again, it is a pity that the term "mining science" is repeatedly used when the real meaning is science applied to mining. The main point, however, is that the Board of Education has now issued a definite scheme in which a systematic and progressive education in scientific principles is recognised as the correct method of training coal-mining students.

THE report of the Board of Education for the year 1914–15 (Cd. 8274) is now available. The period dealt with coincides almost exactly with the first year of the European war, and the report is consequently concerned largely with the dislocations and modifications in the educational services brought about by the conflict. For reasons of economy the Board has suspended the great bulk of its statistical work, and many of the illuminating tabular statements of previous years are wanting. The report not unnaturally emphasises the need for economy in the administration of the public services; but we notice with satisfaction the admission:—"We desire, however, to record our conviction that the claim to regard reductions of expenditure on the public service of education as true economies requires, in the case of every item, the most careful scrutiny." All grades of education are dealt with fully in the report, but it is possible here to refer to one or two points only. The demand for munitions of war has had two effects upon technical schools: first, many schools have been engaged in actual munition work, and, secondly, many schools have inaugurated experimental courses for the training of unskilled persons for the purpose. As to the number of students in attendance at continuation and technical schools in England, the report states that the number of evening and other part-time schools recognised by the Board for 1913–14 was 6269, and the number of individual students under instruction at any time during the year in these schools was 726,626. In the same year twenty-seven institutions providing instruction courses were recognised, the total number of such courses in them being seventy-eight. The number of institutions in which day technical classes were recognised in