

the third is to bring the patients to as high a state of physical health as possible through the agency of dispensaries, hospitals, sanatoria, open-air schools, and the like. Whilst all this is going on, however, the laboratory investigator is to be encouraged to contribute to that stock of knowledge on which most of the administrative preventive and curative methods of dealing with tuberculosis are based. The public health authority, both central and local, the tuberculosis expert, the general medical practitioner, the voluntary anti-tuberculosis organisation, and the laboratory worker are brought together in the scheme of the committee; funds are provided—whether in sufficient amount still remains to be seen, but they are a good beginning—and the scheme starts under the most favourable auspices. That an enormous amount of good will be effected no one can doubt; that a whole-hearted attempt is being made to get the best of the scheme is equally certain; and should modifications or alterations have to be made in the future, it will be only as more light is thrown upon, and a better view obtained of, a very difficult and complicated question.

SARDINES IN SCIENCE AND COMMERCE.

IT has been suggested to us by a correspondent that the publication of the full text of Alderman Sir George Woodman's judgment in the recent "sardine" case, referred to in NATURE of April 25 (p. 194), would be of interest. In our article Sir George was incorrectly stated to have said that the industry of packing the immature pilchard in tins was started in 1882; this date, as will be seen from the subjoined report with which he has kindly favoured us, should have been 1822.

"My decision is that the term 'sardine' is of French origin. It is the French name for the pilchard, the fish scientifically known as *Clupea pilchardus*. The industry of packing the immature pilchard in tins was started in France in 1822, and the fish so packed and imported into this country were universally known as 'sardines.' The word 'sardine' has now become Anglicised, and I hold that the meaning of the term is 'the immature pilchard prepared and packed in oil in tins.'

"This is not what the defendant sold. The 'Skipper sardines' sold by him were the Norwegian fish known as the 'brisling.' The 'brisling' is the *Clupea sprattus* of the same family but of a different species from the *Clupea pilchardus*, and is the same fish, allowing for differences caused by local environment, as the English sprat. There was a false trade description.

"The defendant has not proved that, prior to the passing of the Merchandise Marks Act, 1887, the description 'sardine' was generally applied to any small suitable fish prepared and packed in oil in tins, but I am satisfied that for the last twenty years at least the use of the term 'sardines' has been extended in commerce, especially amongst retail traders, to include any such small fish so packed and prepared. To the defendant, who started his own business in 1903, and was selling Norwegian sardines twenty years ago, the word had this extended meaning. He also knew that the Norwegian Government had

formally adopted the word 'sardines' to describe the brisling packed in oil. He, in my opinion, believed that the description he applied was a true description, and, notwithstanding the very able legal arguments I have just listened to from Mr. Bodkin, I hold that he has proved that he acted innocently within the meaning of Section 2, Subsection 2 (c) of the Merchandise Marks Act of 1887. I therefore dismiss the summons."

We should like to have similar legal pronouncements upon several other commodities which are sold under misleading trade descriptions. For instance, the names under which furs are sold in shops often conceal from the public the nature of the animals from which the furs have been obtained. It is regarded as permissible by dealers and tradesmen to describe the fur of white rabbit, dyed, as "chinchilla coney," Australian opossum as "Adelaide chinchilla," American opossum as "Russian marten," and Belgian hare as "Baltic lynx." Such designations seem to us to be just as misleading as describing sprats as sardines when they are packed in oil. Again, quarry-owners and contractors for road-metal claim that any stone used for this purpose may be described as "granite," with the result that limestones or other inferior rocks for road-making are purchased by local highway authorities under the impression that they are obtaining true granite. We make no claim to impose specific scientific terms upon the common vocabulary or the labels of commerce, but we are sure that the trade custom of describing one thing as another of a superior class cannot be justified by any satisfactory standards of precision or ethics.

THE ROYAL SOCIETY CONVERSAZIONE.

THE first of this year's conversazioni of the Royal Society was held at Burlington House on May 8, and was, as usual, largely attended. Many objects and experiments relating to recent work in science were on view, and in the course of the evening short demonstration lectures were given by Mr. C. V. Boys on soap bubbles, the Hon. R. J. Strutt on active nitrogen, particularly as to the striking effects of pressure and temperature on active nitrogen, and Dr. J. S. Haldane on mountain sickness and acclimatisation to high altitudes.

We are unable to find space for a list of the numerous exhibits, but we extract from the official catalogue a few descriptions of some of the chief objects of interest.

ANTHROPOLOGY.—*Mr. W. Dale*: Palæolithic flint implements from the gravel beds of the River Test at Dunbridge, Hants, at about 100 to 150 ft. above Ordnance datum. The implements are diverse in form and in the character of their patination. A marked feature is the presence of pointed forms quite unwater-worn, which have acquired the white colour of the upper part of the gravel. These are taken as dating the gravel, and assigned to the St. Acheul period. The largest and most pointed is even considered to belong to a later and transitional period. In the same gravels are found older and water-

worn forms, which must have travelled from higher levels.

Sir Ray Lankester, K.C.B.: Flint implements from beneath the Red Crag of Suffolk. Many worked flints of a previously unknown shape, viz. that of an eagle's beak (rostro-carinate) and of other forms, have been discovered by Mr. Moir, of Ipswich, in the bone-bed of the Suffolk Crag. Several of these were exhibited, and also three rostro-carinate flint implements from the mid-glacial sands of Suffolk. Both the Red Crag sea and that of the mid-Glacial period swept these implements from an old Suffolk land surface. Those from below the Red Crag are of Pliocene, and possibly of Miocene, age.

NATURAL HISTORY.—*Dr. H. B. Fantham and Dr. Annie Porter*: *Nosema apis*, the parasite of Isle of Wight disease in bees. This pathogenic protozoon was discovered in 1906 by the exhibitors, and shown experimentally by them to be pathogenic, not only to hive bees, but also to wasps and mason bees. The parasite, which belongs to the Microsporidia, is allied to the organism causing pébrine in silkworms.

Mr. H. R. A. Mallock, F.R.S.: Apparatus for showing the disappearance of iridescent colouring under mechanical pressure. The coloured scales are placed between a flat plate and lens of quartz on the stage of a microscope and viewed during the process of compression with a low-power objective. The scales in the compressor were from Ornithoptera Poseidon. These are bright green by reflected light, but appear red when the light is transmitted. On applying pressure to a scale the colour first changes and then disappears, thus showing that its origin is due to the structure of the scale and not to colouring matter.

Dr. C. J. Patten: A selection of specimens and photographs illustrating some features in bird migration as observed during eight weeks' residence at the Tuskar Rock Lighthouse, Co. Wexford. The following points are noteworthy:—first, that in a comparatively short period, several rare birds—some new to Ireland—have been secured, which, had they reached the mainland, might never have been recorded; secondly, that birds supposed by some observers not to migrate, or at most to do so in a very desultory manner, have been found migrating in considerable numbers together; and thirdly, that remarkable variations in size and plumage may be seen in some species.

Prof. E. B. Poulton, F.R.S.: Butterfly mimicry and mutation. It has been argued, especially by Prof. Punnett, that the mimetic patterns of butterflies arose, ready-made and complete, by a sudden "mutation." The examples which he has specially mentioned are the mimetic females of the African *Papilio dardanus* and the two mimetic forms of *Euralia wahlbergi*. The exhibited series shows (1) the gradual origin of mimicry in the former, through the transitional form *trimeni* leading from the pattern of the non-mimetic females in Madagascar and Abyssinia to the mimetic *hippocoon* female; (2) the existence of a roughly mimetic representative of the two mimetic forms of the Euralia, in an allied species, *E. dinarcha*, and of intermediates which breed true, and are therefore not hybrids (heterozygotes), in a still more closely allied Euralia: all these bred by Mr. W. A. Lamborn in the Lagos district; (3) the four sharply separated mimetic patterns of a *Pseudacraea*, collected by Mr. C. A. Wiggins at Entebbe, connected by intermediates and running into one another on the islands in the Victoria Nyanza, where the Acraeina models are relatively scarce. The latter collected by Mr. G. D. H. Carpenter.

ASTRONOMY.—*Dr. Percival Lowell (Lowell Observa-*

tory, U.S.A.): (1) Spectroscopic discovery of the rotation period of Uranus. Two enlarged copies of two (out of seven measured) of the original spectrograms taken in September, 1911, by Dr. V. M. Slipher, one with the camera to the west, one with it to the east, of the telescope, thus reversing the direction of the tilt. The spectrum of Uranus appears in the middle flanked by the two comparison spectra. The slit was parallel to the satellite's orbital planes. Measurement of the original negatives gives a rotation spin of 10h. 45m. retrograde. (2) Autumnal morning hoar-frost on Mars. Enlarged positives from the original negatives of Mars, taken November 14, 1912, 39° of longitude apart, showing hoar-frost on sunrise edge of the disc 30° to right of topmost point. The hoar-frost was studied for two months, and a memoir is in course of publication. Theory shows that 60° latitude is exactly where it should first have appeared. (3) Halley's comet: last appearance. Photographs with the 40-in. Lowell reflector by Mr. C. O. Lamp-land, on May 23, 27, and 30, 1911; also positive showing the positions in which the comet was photographed by him up to June 1 inclusive. These are the last views got of the comet as it left. (4) Comet Brooks, 1911. Objective-prism spectrogram taken on October 28, 1911, and November 2, 1911, show monochromatic images of the comet, and register the fact that the tail was composed almost entirely of carbon monoxide, while the hydrocarbons and cyanogen were conspicuous in the head.

Prof. H. F. Newall, F.R.S.: Photographs of the spectrum of Nova Geminorum, taken at Cambridge Observatory. Nova Geminorum was discovered by Enebo on March 12, 1912. It was not recorded at Harvard College Observatory on plates taken on March 10, but appeared as a star of fifth magnitude on a plate taken on March 11. Since its first maximum brightness (magnitude about 3.0) the star has faded, with fluctuations, to magnitude 5.0 on March 18, magnitude 6.0 on April 1, 7.0 on April 15. The photographs of spectra exhibited have been prepared from negatives picked out of a series of forty plates secured by Mr. Stratton on thirty-six nights, between March 15 and April 29, with the two-prism spectrograph attached to the 25-in. equatorial, with exposures varying from twenty-five minutes to five hours. They illustrate the rapid changes in the nature of the light emitted, especially in the first ten days after the outburst of the star on March 11.

PHYSICS.—*The National Physical Laboratory*: Apparatus for measuring the visibility of point sources of light. (*Exhibited by Mr. C. C. Paterson and Mr. B. P. Dudding.*) The apparatus contains a pin-hole of known area with a flame of known intrinsic brightness behind it. The intensity of the transmitted light can be varied at will by calibrated absorption wedges placed in the beam to the observer's eye, the combination forming a variable standard point of light of known candle-power. The distant source of light is seen in the same field of view as the standard point source, and the latter is adjusted to be equal to it in brightness. There are arrangements for illuminating the background of the standard pin-hole when observations are being made on nights which are not quite dark. The lower limit of visibility is that of a point source of about one ten-millionth of a candle one metre from the eye of an observer.

Mr. C. T. R. Wilson: (1) Apparatus for making visible the tracks of ionising particles by vapour condensed upon the ions set free along the paths. (2) Cloud photographs showing the nature of the ionisation produced by different kinds of rays. By the sudden dropping of the floor of a cloud chamber,

the moist air within it is cooled sufficiently to make water condense on any ions which may be present, no appreciable stirring of the air resulting from the expansion. Ionising particles passing through the air leave visible trails, consisting of cloud particles condensed on the ions.

CHEMISTRY.—*Sir W. Crookes, O.M.*: Properties of pure fused boron, and the volatility of metals of the platinum group. Pure fused boron, prepared by Dr. Weintraub by decomposing a volatile boron compound in the electric arc, is deposited on water-cooled copper electrodes. The agglomerated boron condenses in a crystalline form. Pure boron can be fused in a mercury arc furnace. It is very hard, and easily scratches quartz and corundum. The most remarkable property of pure fused boron is the abnormal value of its temperature coefficient of resistance. Between ordinary room temperature and a dull red heat the resistance drops in the ratio of 2×10^6 to 1. A small piece of fused boron mounted in series with an electric lamp, at room temperature, obstructs nearly all the current. Warming the boron reduces the resistance, and the lamp lights. Platinum, in the form of very thin ribbon, heated for many hours to a temperature approaching its melting point, sublimes and deposits beautifully formed crystals on the surrounding vessel. Iridium is more volatile than platinum at a high temperature. A plate of pure iridium, after having been heated for twenty-two hours at 1300°C ., has a beautiful "moirée" surface. A crucible of iridium, showing signs of crumbling after long heating, was exhibited.

Messrs. Carl Zeiss (London), Ltd.: Apparatus for demonstrating liquid crystals with polarised light (projection on screen). This instrument consists of an automatic feeding arc lamp of 5 amperes, condensing lenses, water cooler, mounted on optical bench, a microscope, with specially wide body tube situated on the end of optical bench in upright position, and provided with a blow-pipe arrangement and air blast for the purpose of heating chemical preparations to a temperature up to 800°C . Analyser and objectives are provided with cooling chambers, and the object stage is arranged with electric terminals for passing a current across the stage. A specially constructed polariser is fitted below the object stage possessing a large aperture as compared with its length.

ENGINEERING.—*Mr. J. Dewrance*: An adhesion pump. A viscous fluid enters by gravity a shallow spiral channel cut on a revolving surface that is held against the smooth surface of a corresponding chamber. The fluid adheres to both surfaces, and progresses along the channel and is delivered at the other end at considerable pressure.

Prof. E. G. Coker: Special polariscope for examining engineering models under stress. The polariscope is constructed for examining long transparent models of engineering structures by circularly polarised light. Plane polarised light, obtained by reflection from a black glass plate, is afterwards circularly polarised by large quarter-wave plates of mica. The object under stress is viewed through an analyser constructed of glass sheets, and a model, 40 in. by 10 in., can be viewed at one time without the aid of Nicol's prisms.

Dr. J. G. Gray and Mr. G. Burnside: (1) Continuous-current motor-gyrostats for the demonstration of the properties and practical applications of the gyrostat. The gyrostats, which are motors of the Gramme Ring type, are provided with accessories for demonstrating the properties and practical applications of the gyrostat. Experiments (both qualitative and quantitative) can be carried out with convenience and precision. (2) Walking and climbing gyrostats.

Motor-gyrostats are mounted in various ways within wooden boxes. By operating the gyrostats by means of electromagnets, the boxes, which are provided with arms and legs, are caused to walk on the floor and to walk arm over arm along wires stretched horizontally.

NOTES.

At a meeting of the London Section of the Deutsche Kolonial-Gesellschaft on May 11, Dr. A. Smith Woodward gave an address on the significance of the recent discoveries of Cretaceous Dinosauria in German East Africa. Since 1909 excavations have been in progress in the Tendaguru Hills, under the immediate supervision of Prof. W. Janensch and Dr. E. Hennig, and an appeal is now being made for funds to proceed with a fourth year's work. In describing the results, so far as he had seen them in the Berlin Museum, Dr. Woodward emphasised the importance of an exhaustive comparison of the sauropodous dinosaurs of Africa with those of North America, which would now soon be possible. He also alluded to the problems suggested by the gigantic size of some species, which much exceeded the extreme limit of growth calculated to be possible by the late Prof. Marsh when he first discovered the femur of *Atlantosaurus*. Prof. W. Branca sent for exhibition to the meeting a plaster cast of the humerus of *Gigantosaurus*, 2.10 metres in length, which is shortly to be placed in the British Museum (Natural History); while Prof. Janensch lent an important series of photographs which he had taken at different stages during the excavations. The German society is to be congratulated on its enlightened interest in purely scientific work undertaken in a colonial possession, and English science will appreciate the compliment paid to one of its exponents by his being invited to deliver the address in question.

PROF. FRÜHLING, who died at Brunswick on April 24, at seventy-one years of age, did much towards enabling young men engaged in practical sugar work to obtain a scientific training. After graduating in 1866 with a thesis on the nitric acid contents of agricultural crops during the various periods of their growth, he started, in 1870, a public analytical laboratory, and two years later added a department at which instruction in sugar work was given. This "Schule für Zucker-Industrie zu Braunschweig" has flourished ever since, and been attended by students from practically every sugar-producing country in the world, among them being fourteen Englishmen. His "Anleitung," or methods of analysis for all products connected with the sugar industry, has been translated into several foreign languages; in 1911 it reached its seventh edition. He also published an "Anleitung," or laboratory guide, for soil analysis, and edited Stammer's pocket calendar for sugar manufacturers since 1894. The majority of sugar factories in the north of Germany retained him as their official analyst. He also invented several useful pieces of apparatus, which have been adopted for sugar work in a large number of Continental sugar laboratories.