## Contemporary Birthdays.

**July 28, 1864.** Prof. Charles Herbert Lees, F.R.S.
**July 30, 1856.** Viscount Haldane, K.T., O.M., F.R.S.
**Aug. 2, 1876.** Prof. James Wesley Jobling.
**Aug. 5, 1878.** Prof. Louis C. Karpinski.
**Aug. 7, 1864.** Mr. Oswald H. Latter.
**Aug. 8, 1845.** Mr. William Barlow, F.R.S.
**Aug. 8, 1859.** Sir Alfred G. Bourne, K.C.I.E., F.R.S.
**Aug. 8, 1857.** Prof. Henry Fairfield Osborn, For. Mem. R.S. (see page 163).
**Aug. 8, 1858.** Sir Francis G. Ogilvie.

Prof. LEES, who occupies the chair of physics in the University of London (East London College), was born at Glodwick, Oldham. He was educated privately, then at Owens College, Manchester, and at the University of Strasbourg. Before engaging in professorial work in London he was lecturer in physics in the University of Manchester.

Lord HALDANE, Chancellor of the University of Bristol since 1909, was educated at Edinburgh Academy, the University of Edinburgh (of which he was rector, 1905-8), and at Göttingen. He is Hon. D.C.L. (Oxon). Among many critical expositions, he is the author of "The Philosophy of Humanism" (1922). Lord Haldane is president of the British Institute of Adult Education.

Prof. J. WESLEY JOBLING was born in Ohio. Originally on the teaching staff of Columbia University, he was professor of pathology from 1914 until 1918 in the medical department of Vanderbilt University, Nashville (Tennessee), returning then to Columbia to occupy the chair of pathology there.

Prof. LOUIS C. KARPINSKI, mathematician, was born at Rochester, N.Y. He was educated at the State Normal and Training School, Oswego, N.Y., and the University of Strasbourg. Since 1919 he has been professor of mathematics in the University of Michigan. He is joint author with H. Y. Benedict and J. W. Calhoun of "Unified Mathematics" (1918).

Mr. OSWALD LATTER, who has been for many years science master at Charterhouse School, was born at Fulham. From Charterhouse he went to Keble College, Oxford. Sometime Berkeley fellow of Owens College, Manchester, he was also a tutor of Keble before returning to his old school to take up science teaching.

Mr. WILLIAM BARLOW is a Londoner. He is specially identified with researches on crystal structure and related problems. Mr. Barlow is a past president of the Mineralogical Society.

Sir ALFRED BOURNE, a native of Lowestoft, was educated at University College School, London. His services to the Indian Empire have been varied and distinctive. Successively he has been registrar of the University of Madras, botanist to the Madras Government, and professor of biology in the Presidency College, Madras.

Sir FRANCIS OGILVIE, an Aberdonian, graduated at the University of Aberdeen, and, early in his career, was on its teaching staff. In Edinburgh he had, later, various important interests. He was principal of the Heriot-Watt College there from 1886 until 1900, thereafter, for three years, director of the Edinburgh Museum of Science and Art. Transferred to London, he was Secretary of the Board of Education for the Science Museum and Geological Survey from 1910 until 1920, holding also the directorship of the Science Museum. Sir Francis was principal assistant-secretary, Department of Scientific and Industrial Research, 1920–22. He is Hon. LL.D., Edinburgh.

## Societies and Academies.

### DUBLIN.

**Royal Irish Academy**, June 28.—H. **Ryan**, J. **Keane**, and B. **O'Donoghue**: Some derivatives of γ-piperonylidene-methylethylketone. The present communication describes the results of experiments carried out with this substance and some aromatic aldehydes. The starting substance, $CH_3 . CO . C(CH_3) = CH . C_6H_3 . O_2CH_2$, was prepared by the condensation of piperonal and methylethylketone in the presence of hydrochloric acid. By the action of piperonal on γ-piperonylidene-methylethylketone in the presence of alkali, a compound having the formula $C_{20}H_{16}O_5$ was obtained. This dicondensation derivative did not react with a further quantity of piperonal in the presence of alkali, and it was regarded as being 1-methyl-4·5-dipiperonyl-cyclopenten (3)-one (2). On treating this compound with alcoholic hydrochloric acid, it was converted into the isomeric 1-methyl-4·5-dipiperonyl-cyclopenten (4)-one (2). This substance reacted with piperonal in the presence of alkali to form a tricondensation compound $C_{28}H_{22}O_7$. By the action of piperonal on γ-piperonylidene-methylethylketone or on the $C_{20}H_{16}O_5$ body in the presence of hydrochloric acid, the same tricondensation compound $C_{28}H_{20}O_7$ was obtained. This derivative is regarded as being 3-piperonylidene 1-methyl-4·5-dipiperonyl-cyclopenten (4)-one (2). The results obtained in this research are similar to those found by Ryan and Lennon in their investigation on the condensations of aldehydes with methylethylketone.—H. **Ryan**, J. **Keane**, and B. **O'Donoghue**: Some derivatives of α-piperonylidene-methylethylketone. The results of the interaction of α-piperonylidene-methylethylketone and some aromatic aldehydes are described. By the action of piperonal on the starting substance, a compound having the formula $C_{20}H_{16}O_5$ was obtained. This dicondensation derivative of methylethylketone and piperonal was not identical with either of compounds having the same molecular formula obtained by the action of piperonal on γ-piperonylidene-methylethylketone. The last-mentioned derivatives are regarded as isomeric cyclopentenones. The $C_{20}H_{16}O_5$ body prepared by the action of piperonal on α-piperonylidene-methylethylketone formed a tetrabromide and did not react with a further quantity of piperonal. It is regarded as α-γ-dipiperonylidene-methylethylketone. By the action of piperonal on α-piperonylidene-methylethylketone in the presence of hydrochloric acid, a tricondensation compound $C_{28}H_{20}O_7$ was obtained. This body was also prepared by the action of piperonal on γ-piperonylidene-methylethylketone and was proved to be 3-piperonylidene-1-methyl 4·5-dipiperonyl-cyclopenten (4)-one (2).—R. K. **Boylan**: Atmospheric dust and condensation nuclei. As a result of observations made in Dublin between October 1925 and June 1926, using Owens' jet dust counter and Aitken's apparatus, the following average values were obtained: dust particles per c.c. 1580, nuclei per c.c. 23,800. The correlation coefficient between the concentrations of the two bodies was $0·73 \pm 0·056$. It was found, in confirmation of the results of Wigand, that dust particles would not act as centres for cloudy condensation even in the absence of the ordinary nuclei.

### EDINBURGH.

**Royal Society**, July 5.—J. **Tait**: Experiments and observations on Crustacea (Pt. vii.). Some structural and physiological features of the valviferous isopod Chiridotea. This isopod is found along the eastern shores of America. It is peculiar among its kind in that it combines the activity of swimming, walking,

and tunnelling in sand, and the position and arrangement of its limbs may be interpreted in relation to each of these purposes as well as in relation to its habits of feeding.—Norman **Maclaren**: Development of Cavia. Implantation. The theory put forward by Graf von Spee, that in the guinea-pig the ovum is implanted in the uterine mucosa after the manner of a parasite in virtue of the destructive action of its surface cells, has been generally accepted. An alternative theory for the primary phases of implantation here discussed brings the process in Cavia more into line with what is known to occur in other mammals. Instead of eating its own way through the epithelium, the egg becomes lodged in one of the crypts which normally occur at the antemesometral end of the uterine lumen. This crypt becomes closed by the overgrowth of its lips, while the epithelium which originally formed its floor disappears. With the disappearance of the epithelium, destructive changes supervene in which the whole antemesometral part of the lumen is involved. The primary implantation cavity is thus a part of the uterine lumen, and the process does not, in principle, differ from that which occurs in certain other rodents such as the mouse and rat.—W. L. **Ferrar**: On the cardinal function of interpolation theory. Interpolation over a set of equi-distant points by cardinal function formula is 'consistent,' *i.e.* a function which is given accurately by the interpolation formula applied to the values of the function at points $0, \pm nw$ is also given accurately if $w$ be replaced by any smaller $w'$. The formula consists of an infinite series; its relation with a corresponding infinite integral is considered.—E. L. **Ince**: Researches into the characteristic numbers of the Mathieu equation. (Second paper.)

SHEFFIELD.

**Society of Glass Technology**, June 1 and 2.—Sir W. Flinders **Petrie**: Glass in early ages. No glass was made in Egypt prior to about 1500 B.C., all earlier specimens being imported, probably from the Syrians. Examples of glass had been found in Syria, in the Euphrates region, which can definitely be dated back to 2500 B.C. Only fifty years or so elapsed between a time when glass was a comparatively rare commodity in Egypt and a time when it was possibly the commonest commodity of all. Glass vases and glass beads rapidly came into everyday use. At first it was not a liquid glass which was produced, but a glass paste which could be moulded in the plastic state. No blown glass was found in Egypt until one came to an examination of the products of the Christian period. The whole of the earliest glasswares discovered in Egypt were coloured. It was not until about 1200 B.C. that the Egyptians began to make glass by pressing it into moulds, and from thence onwards, until the seventh century B.C., the colour of their glasswares got worse and worse, although the patterns became more and more composite. From the year 350 A.D. the Egyptian glass-makers resorted to the moulding of glass in the production of standard weights for gold coins, a practice which was later copied by the Arabs. The glazing of stones began in Egypt about the twelfth century B.C. Some of the tiles covering the walls of early Egyptian chambers are magnificent examples of colouring; not only single colours were achieved, but also polychromes.—J. W. **Ryde**: Opal glass. A number of commercial and experimental glasses have been examined by the X-ray method in order to determine the nature of the opacifying material which separated out. Sodium fluoride and calcium fluoride had separated out from the glasses examined. The rates of cooling were controlled, and varied so that the effect of the rate of cooling on the depth of opal produced could be investigated. With slow cooling the size of particles which separated out increased until a certain limiting size was reached. In bulbs made of opals in which the opacifying particles are relatively large, very little light is scattered back to traverse the bulb again.—F. F. S. **Bryson**: The electrical conductivity of glasses at high temperatures. The electrical conductivity of several series of glasses was determined at temperatures between the softening point and 1150° C. The glass was heated in a small cylindrical crucible in a platinum wound electric furnace. The temperature-resistance curves for several glasses bear a close relationship to the temperature-viscosity curves for similar glasses, and suggest the possibility of using conductivity measurements as a method of determining changes in the viscosity of a glass immediately before being worked.—Edith M. **Firth**, F. W. **Hodkin**, M. **Parkin** and W. E. S. **Turner**: The influence of moisture on the rate of melting and on the properties of soda-lime glasses. Moisture was present in amounts ranging from 0·25 to 15 per cent. in different batches. In general, when present to the extent of not more than 1-2 per cent. in soda ash batches and not more than 3-4 per cent. in batches containing both soda ash and saltcake, moisture has a beneficial effect on the rate of melting. The glasses which were made from batches containing saltcake, were refined more easily, and were freer from waviness than those prepared from batches containing soda ash only. Glasses prepared from batches containing more than 5-6 per cent. of moisture were more viscous and had a shorter working range than those prepared from ordinary dry batches.

PARIS.

**Academy of Sciences**, June 21.—A. **Lacroix**: Preliminary note on an aerolith discovered in the Department of the Côte-d'Or and remarks on the classification and nomenclature of the chondrites.—Charles **Richet** and P. **Lassablière**: The protective effects of preliminary saline injections on chloroform anæsthesia. Experiments on dogs have proved that the injection of a solution of common salt into the veins before administering chloroform increases the resisting power of the heart. The amount of chloroform can be increased to six times the normal without collapse.—Gabriel **Bertrand** and M. **Mâcheboeuf**: The influence of nickel and cobalt on the action produced by insulin in the rabbit. It has been shown previously that the pancreas is one of the organs containing the largest proportions of nickel and cobalt, and preparations of insulin are even richer in these two metals. This suggested the study of the effect of adding nickel or cobalt or both to preparations of insulin and examining the physiological effect. The effects, which are marked, are shown in a series of graphs.—E. **Bataillon**: The membranogen process and the regular development provoked in virgin eggs of Echinus by hypertonic treatment alone.—Pierre **Weiss** was elected a non-resident member in succession to the late G. Gouy.—A. **Buhl**: The integration of Maurer's equations by series of homogeneous functions.—Armand **Cahen**: Differential equations of the first order linear with respect to the function and the variable.—Renato **Caccioppoli**: Linear functionals.—A. **Tychonoff**: Abstract spaces.—N. **Lusin**: An arithmetical example of a function not forming part of the classification of M. René Baire.—Henri **Bénard**: The inexactitude, for real liquids, of the theoretical laws of Kármán relating to the stability of alternate vortices.—**Garsaux**: The provision of aeroplanes with oxygen. A device is described in which a specially constructed Dewar vessel containing liquid oxygen replaces the usual

cylinder of compressed oxygen: the weight of the apparatus is reduced to one-tenth of that when an oxygen cylinder is carried.—**Dumanois**: The retarded inflammation effect produced by antidetonants. The effect of the addition of such substances as lead tetraethyl to petrol is to retard ignition.—L. **Cagniard**: The use of the quadrant electrometer in high-frequency measurements of precision.—R. **Forrer**: The structure of the atomic magnet. The deformation of the multiplet by the field. The triplet in iron.—F. **Wolfers**: Interferences by diffusion.—R. de **Mallemann**: The dispersion of electrical double refraction of camphor. The specific double refraction of active camphor and of inactive camphor are sensibly identical. The dispersion is normal.—H. **Jedrzejowski**: The method of preparation of sources of RaB + RaC.—Pierre **Achalme** and Jacques **Achalme**: The influence of the viscosity on the specific rotatory power of certain active bodies. Two series of experiments are described, one in which the concentration was kept constant and the viscosity varied by the addition of solution of citric acid, the other in which the viscosity was kept constant and the concentration varied. In the first case the calculated specific rotatory power varied from 13·6 to 6·2; with concentration variable from 3·75 per cent. to 60 per cent. tartaric acid, viscosity constant, the calculated specific rotatory power was practically constant, 8·3 to 8·5. It is pointed out that this new fact of the effect of viscosity is of importance as affecting deductions on the molecular structure of active bodies.—Edmond **Bauer**: The electric structure of the molecules, particularly mesomorph bodies (anisotropic fluids).—P. **Surun**: The adsorption of some organic acids by two activated carbons of different origin. The data given are not in accord with the conclusions of Fromageot and Wurmser, which were based on experiments with Urbain carbon.—F. **Bourion** and E. **Rouyer**: Discussion of the results obtained in the quantitative study of the association of mercuric chloride. Reviewing the work of Linhart, Beckmann, together with the results of their own experiments, the authors conclude that there is equilibrium between simple and double molecules of mercuric chloride at 25° to 40° C. for concentrations not greater than 0·37 mol. There is equilibrium between simple and triple molecules at 100° C. and for concentrations higher than 0·5 mol. —E. **Sterkers** and R. **Bredeau**: Contribution to the study of reactions between solid bodies reduced to the colloidal state. Details of the preparation of calcium resinate in a colloidal mill. Zinc oleate and magnesium stearate can be prepared in a similar manner. —Ch. **Maurain**: The relations between terrestrial magnetic disturbances and solar activity.—Alb. **Frey**: The pigments of *Sterigmatocystis nigra*.—Ph. **Joyet-Lavergne**: The heterogamy of the spores of the horsetail and the characters of sexualisation of the cytoplasm.—R. **Combes** and R. **Echevin**: The variations in the organic matter, mineral matter, and especially calcium, in the leaves of trees during the autumnal yellowing.—H. **Prophète**: Contribution to the study of the waxes of flowers: rose wax. The results of a detailed chemical examination are given.—E. **Chemin**: The development of the spores of *Colaconema Bonnemaisoniæ*.—Mme. L. **Randoine** and R. **Lecoq**: Do the water-soluble vitamins (B) contained in beer yeast exist beforehand in the culture medium? It has been shown in an earlier communication that beer yeast and extracts of beer yeast, so far as concerns the water-soluble vitamins, have a higher value than that of other Saccharomyces or of other yeast extracts of different origin. It is now shown that the source of these vitamins is the malt extract used as the culture medium.—Jules **Amar**: Cellular pigments and physico-chemical actions.—Maurice **Piettre**: Some physical and chemical influences in hæmolysis by hæmolytic immunoserums.—J. **Benoit**: Differentiations, spontaneous and provoked, in the genital glands of the Gallinaceæ.—René **Fabre**: A spectrophotometric method for the study of hæmolysis.—L. **Mercier** and Raymond **Poisson**: Parasitic microsporidia of Mysis.—Edm. **Plantureux**: An antirabies vaccine containing formaldehyde.

CAPE TOWN.

**Royal Society of South Africa**, April 21.—C. von **Bonde**: The chorology of the S. African Heterosomata with some relative problems. The zoogeographical distribution of the S. African flat-fishes is dealt with. Part I. deals with ecology or environment of the species, and Part II. with chorology or their distribution in space. A comparison of the distribution of the Heterosomata with that of other marine faunas shows a remarkable agreement in the ratio of their occurrence in deep sea or in shallow water, the number of endemic species and the preponderance of east coast species.—A. **Ogg**: The structure of the sulphates.—W. A. **Humphrey**: (1) An occurrence of diamonds near Port Nolloth. This occurrence is the first to be discovered on the coastal belt south of the Orange River. The gravel is disposed in alternating layers of loose gravel and thin partings of hard conglomerate in which the constituents of the gravel are cemented together by a calcareous cement. This points to a seasonal deposition of gravel by a stream which was intermittent in its flow. The gravel shows signs of long-continued transport and the diamonds also show slight traces of wear. The source of the diamonds is probably somewhere within the basin of the Kammas River, with which the watercourse containing the gravel was once connected. The diamonds are very brilliant, white and well crystallised. (2) The changed conditions of Namaqualand. The river valleys of Little Bushmanland immediately south of the Orange River have been formed by the action of streams of considerable volume, which cut their way through masses of mountains during some far-distant pluvial period. The upper courses of the shorter tributaries of the Orange in this neighbourhood have been gradually filled up with drift sand which has encroached from the north and obliterated the stream valleys altogether; in some cases mountain ranges are in the process of being buried. The climate has changed from one with a comparatively heavy rainfall to its present semi-arid character. Similarly the Kammas River now no longer carries water to the sea, but is in course of filling up its own bed by its summer floods, which now spread the detritus from the Klipfontein Mountains in wide alluvial flats. This portion of Namaqualand represents an exceedingly old land surface in which valleys are gradually being filled up owing to a decrease in the humidity of the climate.—R. C. **McGaffin** and E. **Newbery**: Single potential of the copper electrode. Very varied results have been obtained by different workers for the single potential of copper in solutions of its salts. One, at least, of the main factors producing this variation is the formation of an insoluble film of basic salt by the action of the electrolyte upon the metallic copper. Attempts have been made to obtain concordant and trustworthy values (*a*) by careful cleaning of the electrode and measurement of the potential immediately after immersion, and (*b*) by retarding or if possible, preventing the formation of the film either by rapid rotation of the electrode or by violent stirring of the electrolyte.