

Alexander Burnes with the remark that, "Since the days when we hung with rapture over the pages of Cook's voyages and felt ourselves inspired by some portion of the enthusiasm that animated the adventurous navigator, we have met with no work by which we have been more interested, delighted and instructed than the travels of Lieut. Burnes". Born at Montrose on May 16, 1805, Burnes at the age of sixteen years entered the Indian army. He became well acquainted with Oriental languages, and soon gaining promotion, became an assistant political officer and was sent on various missions. In 1832, at his own request, he was sent on a twelve-months' expedition into Central Asia. "By his success in this expedition," one writer said, "our traveller at once became famous. He had retraced the greater part of the route of Alexander, surveyed the kingdoms of Porus and Taxiles, sailed on the Hydaspes, crossed the Indian Caucasus, beheld the scenes of the inroads of Jengis, and Timour, and Baber; but more than this, he had detected a new pathway by which India might be invaded." From this journey, Burnes in 1833 returned home to receive the medals of the Geographical Societies of London and Paris and to be lionised by society. Returning to India in 1835, he was employed by the Government on a mission to Afghanistan and six years later lost his life in the terrible massacre of November 1841.

Sir James South's Telescope

Referring to the note in these columns under this title in NATURE of June 9, p. 882, Messrs. Sir Howard Grubb, Parsons and Co. inform us that they have a copy of the extraordinary poster which Sir James South used to advertise the sale of his great equatorial telescope. The accompanying reproduction is from a photograph of the poster.

OBSERVATORY, Campden Hill, Kensington.

To Shy-cock Toy Makers—Smoke Jack Makers—
Mock Coin Makers—Dealers in Old Metals—
Collectors of—and Dealers in Artificial Curiosities—
and to such Fellows of

THE ROYAL ASTRONOMICAL SOCIETY,

as at the Meeting of that most learned and equally
upright Body, on the 13th of May last, were en-
lightened by Mr. Airy's (the Astronomer Royal's),
profound exposé of the Mechanical Incapacity of
English Astronomical Instrument Makers of the
present day.

TO BE SOLD,

BY HAND, ON THE PREMISES BY
Mr. Macleland,

On WEDNESDAY next, DEC. 21st,

BETWEEN 11 AND 12 IN THE FORENOON.
Several Hundred-weight of Brass, Gun Metal, &c. &c.
being the Metal of the

GREAT EQUATORIAL INSTRUMENT,
MADE FOR THE KENSINGTON OBSERVATORY.

TROUGHTON AND SIMMS,

The Wooden Polar Axis of which, by the same Artists, and its Bittings
cubbed up by their Assistants.

MR. AIRY AND THE REV. R. SHEEPHANKS,

were, in consequence of public advertisement on the 8th of July, 1833,
purchased by divers Venders of Old Clothes, and Licensed Dealers in Dead
Cows and Horcses, &c. &c. with the exception of a fragment of Mahogany,
specially reserved, at the request of several distinguished Philosophers,
which, on account of the great anxiety expressed by Foreign
Astronomers and Foreign Astronomical Instrument Makers, to possess
what converted into Sun's Axes, as a souvenir pigment of the state of
the Art of Astronomical Instrument Making in England during the 19th
Century, will, at the conclusion of the Sale, be disposed of, at—per pound.

H. Johnson, Printer, 8, York Street, Oxford Street.

Societies and Academies

LONDON

Physical Society, June 1. G. F. HULL, S. E. GREEN and MARY BELL: The pressure of radiation. A historical statement. A brief account of some early experiments on radiation pressure, dealing in particular with the investigations of Lebedew and of Nichols and Hull. A. H. JAY: The estimation of small differences in X-ray wave-lengths by the powder method. It has been found possible by the use of a microphotometer to determine accurately the positions of lines at high angles of reflection on a powder photograph. With a powder photograph of clear colourless quartz taken with copper K_{α} radiation, the distance apart of the two component lines of a well-resolved doublet was measured to within 0.0002 cm. The measurements were then corrected for systematic errors—eccentricity of specimen, absorption of the radiation in the specimen, and divergence of the X-ray beam. The wave-length difference ($\lambda_2 - \lambda_1$) was finally calculated in terms of the given wave-length λ_1 . The value of ($\lambda_2 - \lambda_1$) for copper K_{α} radiation is given as 3.833 X. H. STAFFORD HATFIELD: The action of alternating and moving magnetic fields upon particles of magnetic substances. An explanation of the translatory movement observed by Mr. W. M. Mordey in magnetic particles subjected to a multi-phase alternating field. A. MORRIS CASSIE: Time scale and electron relay used with a cathode ray oscillograph for the investigation of switch-gear and circuit phenomena. E. GWYNNE-JONES: Note on the hyperfine structure in the arc spectrum of xenon. The hyperfine structures of the Xe I lines $\lambda\lambda$ 9045, 9799 and 9923 are described and analysed, and the hyperfine separations of the terms $2p_0$ and $2p_{10}$ are derived. It is also found that the lines $1s_3 - 2p$ are readily self-reversed. Previous nuclear spin data are confirmed.

PARIS

Academy of Sciences, April 30 (C.R., 198, 1557-1644). P. VIALA and P. MARSAIS: The biology of *Pumilus medullæ*, the cause of the parasitic *court-noué* of the vine. This parasite belongs to the family of the Sphæriaceæ: it forms a new genus near the genera *Xylaria* and *Eutypa*. BORIS KAUFMANN: General closed surfaces and the local dimension. GEORGES KUREPA: Ramified tables of ensembles. MAURICE JANET: Systems of two partial differential equations with one unknown function of n independent variables. ANDRÉ MAGNIER: The integral of Kronecker. F. MARTY: The modulus of the Maclaurin coefficients of a univalent function. G. DEDEBANT, PH. SCHERESCHEWSKY and PH. WEHRLE: The statistical similitude in turbulent movements of fluids. MAX SERRUYS: The passage from the deflagrating to the detonating regime in petrol motors. JEAN LOUIS DESTOUCHES: The definition and properties of the centre of gravity in wave mechanics. HENRI MINEUR: Researches on the movements of the B stars. J. GÉHÉNIU: The magnetic electron and the correspondence principle of Th. De Donder and J. M. Whittaker. BERNARD KWALL: A system of real matrices which interpose in the theory of the magnetic electron when placed in space-time of special relativity. PIERRE VERNOTTE: How to approach the problems of the propagation of heat with fixed boundaries when the thermal properties of

the medium depend on the temperature. ALBERT MILHOUD: The electromotive force produced by the flow of steam. Study of the effects of variations of diameter and length of tubes forming the jets and pressure of the steam on the electromotive forces produced. The latter may amount to several thousand volts: a super heat of 30° C. completely suppresses the electrification. N. STOYKO: The interference of short electric waves in the case of superpropagation. F. TROMBE: The magnetic properties of metallic cerium, lanthanum and neodymium at various temperatures. These experiments, the results of which are given as curves, were carried out on exceptionally pure specimens of the metals. M. DODERO: The preparation of calcium silicide by high temperature electrolysis. The electrolysis of calcium silicate, with the addition of calcium fluoride and chloride, gives alloys of free silicon and the silicide CaSi_2 , the proportion of free silicon diminishing with the temperature. J. DEVAUX: Study of the solar spectrum in the extreme infra-red. RENÉ COUSTAL: The action of the silent electric discharge on certain phosphorescent substances. J. P. MATHIEU: The configuration of some optically active hexacoordinated complex compounds. IVAN PEYCHÈS: The rotatory power of the tartrates of the alkaline earths. R. ARNOULT: The magnetic spectrum of the β -rays emitted by thorium B + C + C' + C". RENÉ DUBRISAY: A method of capillary analysis. Mlle. PAULETTE BERTHIER: The soaking of porous bodies by liquids. RAYMOND: A method of separating antimony and tin. The method is based on the use of triethyl-olamine, $\text{N}(\text{CH}_2\text{CH}_2\text{OH})_3$ as a reagent. F. DIÉNERT and F. VILLEMAINE: The estimation of small quantities of nitrates in waters rich in organic matter. HENRI WAHL: The nitration of chloro-*p*-xylene. CHARLES DUFRAISSE and ARNALDO PERES DE CARVALHO: An attempt at the preparation of rubenes derived from fluorene: formation of a red non-rubenic compound. Internal tensions and the probabilities of formation of rubenes. N. MENCHIKOFF: The southern bank of the Jurassic Mésogée in Algero-Moroccan borders. RAYMOND FURON and CONRAD KILIAN: The discovery of the Senonian at Damergou (French Niger). JACQUES DE LAPPARENT: The development of the Rosaline limestones in Greece. Mlle. MADELEINE FRIANT: The comparative evolution of the upper molars in the primates and primitive insectivores. H. S. REED and J. DUFRENOY: The methods of calculation of the theoretical curve of growth of vine shoots. PIERRE DANGEARD: The budding of the nucleoles observed in *Lathraea Cladestina* and in some plants with prochromosomes. R. REILHES: The modifications of the lipid concretions (Mirande's sterinoplasts) in the bulb of *Lilium candidum* with the temperature. LOUIS FAGE: The presence of luminous organs in the pelagic amphipods. LÉON BERTIN: A new species of abyssal fishes: *Saccopharynx Schmidtii*. RAYMOND-HAMET: The influence of atropine on the intestinal effects of adrenaline. G. TANRET: The glucoside from the seeds of *Coronilla*. PIERRE GRABAR: Study of serum proteins by filtration on membranes of graduated porosity. E. WOLLMAN: Researches on autolysis. The specific autolysines.

MELBOURNE

Royal Society of Victoria, April 12. JANET W. RAFF: Observations on saw-flies of the genus *Perga*, with notes on some reared primary parasites of the

families *Trigonalidæ*, *Ichneumonidæ* and *Tachinidæ*. This paper records the results of breeding saw-flies from fully grown larvæ, collected for the most part near Melbourne since 1928. Most of the breeding has been carried out under quarantine conditions. The paper includes a revision of the life-history of *Perga* as seen from numerous broods of larvæ. Three cases are quoted where prepupal instar was extended for an extraordinarily long period. Part of the paper concerns the details of emergences of several individual broods of larvæ, of emergences of adults, of the appearances of sexes, and the extent of parasitism. A third part embraces notes on reared primary parasites. One of the *Trigonalidæ* is recorded for the first time as a primary parasite, and the habits of this rare family recapitulated. Evidence of lengths of stages of the *Ichneumonidæ* and *Tachinidæ* have been obtained from examination of cocoons from time to time, during breeding experiments.

VIENNA

Academy of Sciences, March 1. KARL WOLF: Bending vibrations of an elastic strip. Calculation of the frequency of such vibrations for a strip fixed at the mid-points of its two ends gives an approximate value about six per cent different from that determined by 'one-dimensional' calculation. H. KUN: Female sexual hormone and psychic heat in the female. HANNS TOLLNER: Astronomical determinations of position on Jan Mayen; continental drift. HANS HORNICH: Remarks on a special class of Riemannian surfaces. J. KISSER and H. ERTL: Distribution of traumatic substances in cases of traumatic curves in plants. VIKTOR OBERGUGGENBERGER: Extinction of effective wave-lengths.

March 8. ERNST SPÄTH and JULIUS ZELLNER: Marasmin. This compound, obtained from the fungus *Marasmius Scorodonius*, is identical with *l*-leucine. GEORG KOLLER and KARL PÖPL: A chlorine-containing lichen constituent. The constitutions of (1) monochloratranol, formed on acetolysis of an atranorin derived from *Pseudevernia furfuracea*, L. vars. *ceratea* and *isidiophora*, and (2) its mother substance, monochloratranorin, are given. EDUARD HASCHEK: Fundamental sensations (2); influence of the eye-medium on the perception of colour. RUDOLF KALINA: Calculation of the stresses in metal girders with continuous welded seams. LOTHAR GEITLER: Change of form of pennate diatoms. FRIEDRICH TRAUTH: Geological studies in the western lower Austrian Alps. VIKTOR PIETSCHMANN: Three new fish from the coastal waters of Hawaii. *Scorpaena fowleri*, *Dascyllus edmondsoni*, and *Asterropterix eumeces* are described.

March 15. PAUL LUDWIK and RUDOLF SCHEU: Interference of X-rays. FRITZ WESSELY and KONSTANTIN DINJAŠKI: Action of light on substances of the furocoumarin type. When subjected to the action of daylight or ultra-violet light, pimpinellin I, a constituent of the roots of *Pimpinella saxifraga*, yields two dimerides. Such dimerisation is not, however, a general property of the furocoumarins. HERBERT HABERLANDT, BERTA KARLIK and KARL PRZIBRAM: Fluorescence of fluorite (2). Experiments with synthetic material show that the blue fluorescence bands are to be attributed to europium and the green low-temperature bands to ytterbium. A connexion between the radio-photofluorescence bands

and the divalent forms of the rare earths is indicated. KONRAD FUNKE and GREGOR PRINZ YPSILANTI: Position of the substituents in dinitroperylene. OTTO KOLLER: Fauna of southern Burgenland (Strembach Valley).

WASHINGTON, D.C.

National Academy of Sciences (*Proc.*, 20, 93-144, Feb. 15, 1934). JOEL STEBBINS and ALBERT E. WHITFORD: The diameter of the Andromeda nebula. A photoelectric photometer has been attached to the 100-in. reflector at Mount Wilson. The telescope is set on the nucleus of the nebula and measures of the sky, or of sky plus nebula, are taken at the same hour circle at intervals of 10' in declination. The data obtained indicate that the nebula is much larger than has hitherto been appreciated from photographs; the known diameter of the nebula north and south from the nucleus and the apparent minor axis or width should be more than doubled. DONALD A. JOHANSEN: Haploids in *Hordeum vulgare*. About 10 per cent of a commercial sample of barley gave plants with very few root tips; the seeds appeared to have more copious endosperm. They proved to be haploids with seven somatic chromosomes. W. E. CASTLE: Possible cytoplasmic as well as chromosomal control of sex in haploid males. Haploid males are only somatically male and this cytoplasmic influence is exerted to overbalance the female tendency of the chromosomes unless dissimilar sex chromosomes are present. J. L. CARTLEDGE and A. F. BLAKESLEE: Mutation rate increased by ageing seeds as shown by pollen abortion. The experimental seeds were *Datura* stored at room temperature for periods up to ten years. HARRIET B. CREIGHTON: Three cases of deficiency in chromosome 9 of *Zea mays*. K. G. EMELÉUS: Notes on intensities in the spectrum OII. M. H. JOHNSON, JR.: On the vector model for almost closed shells. G. PINCUS and E. V. ENZMANN: Can mammalian eggs undergo normal development *in vitro*? Ova from a doe rabbit of one breed were fertilised *in vitro* with sperm from a buck of another breed, and then transferred to a doe of a third breed made pseudo-pregnant by mating with a vasectomised buck of a fourth breed. Young were successfully born which bore none of the characters of the third and fourth breeds used. Another similar transference of ova was also successful. The experiments also show that the corpora lutea of pseudo-pregnancy are functional. NELSON A. WELLS and CLAUDE E. ZOBELL: *Achromobacter ichthyodermis*, n. sp., the etiological agent of an infectious dermatitis of certain marine fishes. This organism causes a highly fatal dermal infection of *Fundulus* in Nature, the effect of which becomes serious in aquaria for *Fundulus* and also for other fish. The organism has only been cultured successfully in sea water substrata. It survives 40° C. for 10 minutes but is killed at 45°; optimum for multiplication, 25°-30°; optimum virulence for *Fundulus*, 20°-25°. Fish in water above 30° resist inoculation, and diseased fish, if acclimatised to 32°-35°, completely recover. G. A. MILLER: Minimum number of squares in a group when not all of them are relatively commutative. EDWARD KASNER: General theorems on trajectories and lines of force. GUSTAV A. HEDLUND: On the metrical transitivity of the geodesics on a surface of constant negative curvature. EINAR HILLE and J. D. TAMARKIN: On the theory of Laplace integrals (2).

Forthcoming Events

[Meetings marked with an asterisk are open to the public.]

Monday, June 25

ROYAL GEOGRAPHICAL SOCIETY, at 3.—Annual General Meeting.

INSTITUTE OF PHYSICS (MANCHESTER SECTION), at 5—(in the Physics Department, The University).—Dr. J. M. Nuttall: "Units of Matter".*

Tuesday, June 26

EUGENICS SOCIETY, at 5.15—(in the Rooms of the Linnean Society, Burlington House, W.1).—Prof. F. A. E. Crew: "The Inheritance of Educability in the Rat".*

Wednesday, June 27

INSTITUTE OF PHYSICS (MANCHESTER SECTION), at 5—(in the Physics Department, The University). Prof. W. L. Bragg, Dr. A. J. Bradley and Dr. C. Sykes: "Alloys".*

INSTITUTION OF PETROLEUM TECHNOLOGISTS, June 28-29.—Summer meeting to be held at the Royal Society of Arts, London. President: T. Dewhurst. Discussions: "Oil and Coal"; "Progress of Naphthology".

Official Publications Received

GREAT BRITAIN AND IRELAND

Memoirs of the Cotton Research Station, Trinidad. Series B, Physiology, No. 6: Studies on the Transport of Nitrogenous Substances in the Cotton Plant. Part 6: Concerning Storage in the Bark. By T. G. Mason and E. Phillis. Pp. 315-333. (London: Empire Cotton Growing Corporation.) 2s. 6d.

Royal Botanic Gardens, Kew. Bulletin of Miscellaneous Information, 1933. Pp. iv + 512 + 56 + 18 plates. (London: H.M. Stationery Office.) 15s. net.

The Lister Institute of Preventive Medicine. Report of the Governing Body, 1934. Pp. 32. (London.)

OTHER COUNTRIES

Suppléments au Bulletin biologique de France et de Belgique. Supplément 17: Recherches sur la spermatogenèse des phasmes; mâles d'origine bisexuée. Par Dr. Maurice Favrelle. Pp. ii + 155 + 3 plates. (Paris: Laboratoire d'Évolution des Êtres organisés; Les Presses universitaires de France.) 55 francs.

Zentralanstalt für Meteorologie und Geodynamik. Publikation Nr. 139: Jahrbücher der Zentralanstalt für Meteorologie und Geodynamik. Amtliche Veröffentlichung, Jahrgang 1928. Neue Folge, Band 65. Pp. xx + A42 + B58 + C48 + D8. Publikation Nr. 140: Jahrbücher der Zentralanstalt für Meteorologie und Geodynamik. Amtliche Veröffentlichung, Jahrgang 1929. Neue Folge, Band 66. Pp. xx + A42 + B61 + C52 + D6. (Wien: Gerold und Komp.)

Commonwealth Bureau of Census and Statistics, Canberra. Official Year Book of the Commonwealth of Australia. No. 26, 1933. Prepared by E. T. McPhee. Pp. xxxii + 942. (Canberra: Government Printer.) 5s.

Istanbul Forschungen. Herausgegeben von der Abteilung Istanbul des Archäologischen Institutes des Deutschen Reiches. Band 5: Die Felsbilder von Yazılıkaya. Neue Aufnahmen der Deutschen Boğazköy-Expedition 1931. Zusammengestellt und eingeleitet von Kurt Bittel. Pp. 12 + 31 plates. (Bamberg.) 10 gold marks.

Proceedings of the Academy of Natural Sciences of Philadelphia, Vol. 86. Zoological Results of the Third De Schauensee Siamese Expedition, Part 2: Birds from Siam and the Southern Shan States. By Rodolphe Meyer de Schauensee. Pp. 165-280. (Philadelphia.)

Ceylon. Part 4: Education, Science and Art (G). Administration Report of the Acting Marine Biologist for the Year 1933. By A. H. Malpas. Pp. 7. (Colombo: Government Record Office.) 10 cents.

Smithsonian Miscellaneous Collections. Vol. 89, No. 14: Millipeds of the West Indies and Guiana collected by the Allison V. Armour Expedition in 1932. By H. F. Loomis. (Publication 3244.) Pp. ii + 69 + 4 plates. (Washington, D.C.: Smithsonian Institution.)

Bulletin of the American Museum of Natural History. Vol. 67, Article 5: Revision of the Hyrachyidae. By Horace Elmer Wood, 2nd. Pp. 181-295 + plates 20-24. Vol. 67, Article 6: Petrology of Stone Artefacts from Mongolia. By L. Erskine Spock. Pp. 297-310 + plates 25-32. (New York City.)

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