

## News and Views

### Royal Society: New Fellows

At a meeting of the Royal Society of London on May 7, the following fellows were elected: Dr. A. C. Aitken, lecturer in mathematical statistics and actuarial mathematics, University of Edinburgh; Dr. J. D. Cockroft, demonstrator in physics, University of Cambridge; Prof. H. J. Fleure, professor of geography and anthropology, University of Manchester; Mr. C. Forster-Cooper, director of the University Museum of Zoology and reader in zoology, University of Cambridge; Sir Alexander Gibb, consulting engineer; Mr. H. L. Guy, chief engineer, Mechanical Engineering Department, Metropolitan Vickers, Ltd.; Prof. H. G. A. Hickling, professor of geology, Armstrong College, Newcastle-on-Tyne; Prof. Lancelot Hogben, professor of social biology, University of London; Dr. J. Kenyon, head of the Chemistry Department, Battersea Polytechnic; Prof. E. H. Kettle, professor of pathology, University of London; Prof. N. F. Mott, professor of theoretical physics, University of Bristol; Dr. R. G. W. Norrish, lecturer in physical chemistry, University of Cambridge; Prof. H. H. Plaskett, Savilian professor of astronomy, University of Oxford; Mr. E. F. Relf, superintendent, Aerodynamics Department, National Physical Laboratory; Dr. F. J. W. Roughton, lecturer in physiology, University of Cambridge; Prof. Birbal Sahni, professor of botany, University of Lucknow; Prof. E. B. Verney, Shields reader in pharmacology, University of Cambridge.

### Transmutation of Matter

DR. J. D. COCKROFT gave the twenty-seventh Annual Kelvin Lecture to the Institution of Electrical Engineers on April 23. He chose as his subject the transmutation of matter by high energy particles and radiations. In 1919, Rutherford's discovery that the central nuclei of atoms could be penetrated and permanently changed by a bombardment of very high speed atomic projectiles, such as those given off by radioactive bodies, proved that the ordinary elements are not immutable. It took some years before the importance of his experimental results was fully recognised. He observed that nitrogen gas, penetrated by helium nuclei, ejected hydrogen nuclei. It has been shown since that boron, fluorine, sodium, magnesium, aluminium, phosphorus and sulphur can be similarly transmuted. In the case of nuclear transmutations, it seems that the loss of mass is precisely equal to the increase in the kinetic energy that has taken place. This gives a striking proof of the modern physical law that mass and energy are equivalent. In 1932, Chadwick discovered the neutron, a new type of atomic particle which has no electric charge. It does not therefore interact with other electrons and produces no ionisation when passing through a gas. It is of outstanding importance because of its power to produce transmutations. There is little hope that this process can be used on

an engineering scale to convert mass into energy. So far, our laboratory experiments produce the converse result. Theory indicates that at temperatures equal to those of the interior of the sun or stars, it might be possible to convert the inexpensive simple elements to the more valuable heavier combinations, but practically, there is no method of producing the effects formerly attributed to the 'philosopher's stone'.

### The Hofmann Memorial Lecture

THIS lecture, in memory of A. W. von Hofmann, was delivered by Prof. G. T. Morgan, director of the Chemical Research Laboratory, Teddington, at the Imperial College of Science and Technology on May 4, Lord Rayleigh, chairman of the Governing Body of the College, presiding. Hofmann was the first director of the Royal College of Chemistry, which was founded in 1845. He held this position for twenty years. The College was eventually renamed the Royal College of Science, and became a constituent part of the Imperial College at South Kensington. In previous years, Huxley Memorial Lectures have been given at the College during the first week of May; in future, these will be alternated with lectures commemorating other distinguished men who have been associated with the Imperial College or its forerunners. The Hofmann Memorial Lecture was the first of the new series, and Prof. Morgan, from his early associations with the College and his work in organic chemistry, was an appropriate choice as lecturer. A brief account, giving the substance of the lecture, appears elsewhere in this issue (p. 769), and the complete lecture is also available (London: Macmillan and Co., Ltd., 1s. net).

### Native Lands in South Africa

IN recent discussion in the Union of South Africa relating to the Cape franchise and native representation in Parliament, it was generally understood that, when once this question had been settled, consideration would be given to the problem of native lands, in accordance with an undertaking outstanding for many years. At present the lands held as native reserves comprise some 20,000,000 acres, which in part owing to native custom, in part owing to increase in population, is admittedly quite insufficient for tribal needs. In order to remedy a situation which is the cause of considerable unrest, and as General Hertzog, the Prime Minister, stated in Parliament, as an earnest of the Government's sincerity in dealing sympathetically with native needs, a Bill has been introduced, of which the second reading was moved by Mr. Grobler, Minister for Native Affairs, on April 30. Under its provisions, a South African Native Trust is to be established, which will be administered by the Governor General. In this Trust will be vested all lands reserved for

native occupation; and further land is to be purchased out of moneys to be provided by Parliament. Purchase will be spread over a period of five years, the total amount of the expenditure being £10,000,000. This will admit, it is expected, of an addition of 14,000,000 acres to the reserves. Among the provisions of the Bill it is proposed to include the gradual abolition of native squatting on European-owned lands and the registration of native labour tenants. Of these the former will in all probability arouse some opposition on the part of various interests; but the practice has given rise to friction and abuse on occasion, and on the whole its abolition is probably well advised.

#### Control of Australian Aborigines

AN innovation of no little importance in the method of controlling the Australian aborigines, who come under the jurisdiction of the Commonwealth Government, is announced from Canberra. The Cabinet has decided, it is reported by *The Times* correspondent in the issue of April 29, that in future the work of the police patrol in the south-west of the Northern Territory will be entrusted to an anthropologist who is familiar with the language and customs of the tribes. The district under the new officer will thus include the country of the Arunta, made famous in the annals of anthropology by the investigations of Sir Baldwin Spencer and F. J. Gillen. This change in administrative machinery is, no doubt, in large measure due to the protests made, especially by anthropologists, when recently certain aborigines were tried for murder on account of killings in accordance with tribal custom. It is, at any rate, regarded as marking an advance in the method of dealing with native offences against the law of the white man, as the officer will have magisterial powers to deal with the great majority of cases, and will take only the more important to the court at Alice Springs. Mr. Paterson, the Minister for the Interior, has announced that Dr. Strehlow of the University of Adelaide, now conducting investigations on behalf of that University in North Australia, has been appointed to the post.

#### Scientific Research in Australia and New Zealand

AT the instance of the Governments of Australia and New Zealand, steps are being taken to effect close collaboration between their respective Councils for Scientific and Industrial Research. The two Dominions have in common many problems in primary industry, and united action to solve them is obviously desirable. It is proposed to attach New Zealand officers to the Australian teams working on (a) mammitis in dairy cattle, (b) bovine contagious abortion, (c) sterility in sheep and (d) preservation and transport of foodstuffs. Australia will probably second an officer to the staff of the Dairy Research Institute of New Zealand, and will send the leaders of its Soils and Forest Products Divisions to consult with their corresponding numbers there about future co-operative organisation. This move for closer association between the research councils of the Dominions is overdue and its development will be watched with much interest.

#### The Parliamentary Science Committee

DURING the past twelve months several institutions have affiliated with the Parliamentary Science Committee; and the approximate aggregate membership of all the bodies affiliated is now 100,000. Two of the latest bodies to enrol themselves are the Institution of Gas Engineers and the British Association of Zoologists. The last-named accession affords peculiar satisfaction to the Committee, inasmuch as it is the first enrolment of a body devoted to pure—as distinct from applied—science; and it is hoped that it is the harbinger of others to come. Many societies devoted to natural history were perturbed last year at the prospect of a bombing centre being established near Chesil Beach. Letters of protest were published in the daily Press, but more effective action might have been taken by bringing the matter before Parliament through such a medium as the Parliamentary Science Committee, which actually meets at the House of Commons. By so doing, naturalists would have had the advantage of common action on their behalf by a Committee entitled to speak for an aggregate of 100,000 people interested in scientific matters—a body not to be lightly disregarded by a House of Commons the individual members of which owe their presence in that assembly to the votes cast in their favour.

#### Physics of the Divining Rod

THE April number of *Discovery* contains an article on the divining rod by E. Christie which gives a detailed account of methods adopted by the author in searching for water and certain metals. It claims to show that there is nothing mysterious about the power of divining, and that it is subject to definite natural laws. The great difficulty which impedes the progress of scientific investigation is that the statements of dowzers regarding their methods in the field and manner of inference vary considerably, and the article mentioned only adds yet another to the many already published. That there is a basic similarity cannot be denied by anyone who has taken the trouble to study them, but the elucidation of the fundamental facts from what are necessarily very subjective accounts has so far not been achieved. The author, however, is right in stressing the point that without examining the details, in such accounts as he has written, no man of science is likely to arrange a reliable test for dowzers. Experiments in which the underlying physical process is unknown are always difficult to interpret, and it is very doubtful whether a conclusive proof of the claims of dowzers will be obtained unless much more attention is given to their writings, vitiated as they nearly always are, by the incorrect use of the terminology of physics.

#### Royal Institution: Annual Meeting

THE annual meeting of the members of the Royal Institution was held on Friday, May 1. In the unavoidable absence of the president, Lord Eustace Percy, the chair was taken by the treasurer, Sir Robert Robertson. The Committee of Visitors, in a preface to its annual report, which was presented at