

While his main interests lay in the direction of organic chemistry, the extraordinary breadth of Ryan's knowledge of all branches of chemistry always aroused the admiration of his colleagues, both in Great Britain and Ireland. To Irish men of science his great achievement was that he created in Dublin, from small beginnings and almost unaided, an important school of research in chemistry. The range of his influence in this respect, already widely felt, will be more fully appreciated in the future.

In public and private life Hugh Ryan was a most lovable and sterling character, with a rare simplicity and charity of outlook. His untimely death will cause genuine grief among the many students of science, engineering, and medicine who received instruction from him.

J. ALGAR.

WE regret to announce the following deaths :

Dr. T. V. Barker, secretary to the University Chest in the University of Oxford, author of numerous books and papers on mineralogy and chemical crystallography, on April 15, aged fifty years.

Prof. E. P. Culverwell, senior fellow and professor of education in Trinity College, Dublin, who was known for his work on the calculus of variations and mathematical and physical theories of the Ice Age, on April 17, aged seventy-five years.

Prof. J. Lorrain Smith, F.R.S., professor of pathology and dean of the faculty of medicine in the University of Edinburgh, on April 18.

The Ven. J. M. Wilson, sometime canon of Worcester and headmaster of Clifton College, who was a member of a British Association committee on science in schools so long ago as 1866, on April 15, aged ninety-four years.

News and Views.

THE preliminary programme has now been issued of the centenary meeting of the British Association, to be held in London on Sept. 23-30, under the presidency of the Right Hon. J. C. Smuts. So far, of course, only the barest outline of the proceedings is possible, but it is clear already that the meeting is going to be worthy of the occasion. The reception room and offices for the meeting will be in the University of London (Imperial Institute Road, South Kensington). General Smuts will assume office at a meeting in the afternoon of Sept. 23 in the Albert Hall, where the Faraday Centenary Exhibition is being held, and will deliver his presidential address on the same evening at the Central Hall, Westminster. Special tickets will be required for General Smuts's address; arrangements are being made for relaying it to other halls if necessary. Evening discourses will be given by Prof. W. A. Bone (photographic analysis of explosion flames), Sir P. Chalmers Mitchell, Sir Arthur Keith, Sir Oliver Lodge (a retrospect of wireless communication), Sir William Hardy, and Sir James Jeans. The Huxley Memorial Lecture of the Royal Anthropological Institute will be delivered on Sept. 29 by Dr. G. Thilenius, and members of the Association are invited. Various public lectures will be given in certain polytechnic institutions in London. It is expected that receptions will be given on Sept. 24 by the Royal Society, in connexion with the Faraday celebrations, and on Sept. 25 by H.M. Government. Exhibits and demonstrations are again being arranged by the British Broadcasting Corporation. London and its neighbourhood will provide plenty of opportunities for sectional excursions. Down House, Darwin's home for many years and now in the care of the Association, is within easy reach, while an invited party will visit York, the birthplace of the Association, on Sept. 26-27. Preceding the meeting will be a geological excursion to East Anglia on Sept. 16-22, and those wishing to take part are requested to communicate with Mr. I. S. Double, University, Liverpool, as soon as possible.

THE formative influence upon the teaching of science in schools which was exerted by Canon J. M. Wilson, whose death has recently occurred, was evident so

far back as 1866, when he was a member of a committee with Dean Farrar, Prof. T. H. Huxley, and Prof. J. Tyndall, appointed by the British Association at its meeting at Nottingham, "To consider the best means of promoting scientific education in schools". The report of this committee was issued in 1867 and laid stress on science as an essential subject in the curriculum, not necessarily to train physicists and chemists but as an effective instrument in mental development. The subjects suggested in the report were elementary physics, elementary chemistry, and botany. Canon Wilson, in a paper on "Teaching Natural Science in Schools", published in 1867, gave an account of methods adopted in introducing science teaching in Rugby School. He selected botany as the best subject for beginning to train boys in scientific method. This was followed by experimental physics. By his choice, he seems to have anticipated the present-day position of botany in the school curriculum, at any rate, from the theoretical point of view. There is much discussion on the position of botany, or elementary biology, in the school curriculum, but there is still much to be done in a practical way. There are comparatively few secondary schools, especially for boys, where science is introduced by botany or biology, as it was sixty-five years ago under Canon Wilson at Rugby. The sole idea in Canon Wilson's mind was to train independent observation and reasoning, not to supply the biology 'demanded' by the first examination for medical and dental degrees and diplomas, which some of our public and secondary schools are now doing with not quite satisfactory results.

ON April 28, one hundred years ago, the eminent mathematician and physicist, Peter Guthrie Tait, was born at Dalkeith. Educated at Dalkeith Grammar School and the Edinburgh Academy, in 1847 he entered the University of Edinburgh and the following year became an undergraduate of Peterhouse, Cambridge. At the age of twenty-one, he graduated as Senior Wrangler, being the youngest on record. He was also Smith's prizeman. Two years later he was appointed professor of mathematics in Queen's College, Belfast, having Andrews for one of his

colleagues. In Ireland he also made the friendship of Sir William Hamilton, through whom he became the great exponent and advocate of quaternions. After four years at Belfast, Tait was chosen to succeed J. D. Forbes as professor of natural philosophy in the University of Edinburgh, and this post he held with great distinction until the year of his death, which occurred on July 4, 1901. His biographer gives a list of 22 volumes and 365 papers written by him alone or in collaboration with others. Most famous of all is the "Treatise on Natural Philosophy", written jointly with Sir William Thomson, afterwards Lord Kelvin, and generally referred to as "T and T". This work, it has been said, takes rank with Newton's "Principia", Laplace's "Mécanique céleste", and Maxwell's "Electricity and Magnetism". Other works included Tait's "Thermodynamics" (1868), "Heat" (1884), "Light" (1884), and "Properties of Matter" (1885). He also translated Helmholtz's "Vortex Motion" and Mohr's "Views on the Nature of Heat".

Two volumes of Tait's scientific papers were published in 1898 and 1910, and his biography by Prof. C. G. Knott appeared in 1911. His portrait was painted three times by Sir George Reid and the pictures are to be seen at Peterhouse, the Royal Society of Edinburgh, and the Scottish National Portrait Gallery respectively. As a professor, he was distinguished by his earnest attention to the duties of his chair and by his capacity of inspiring his pupils with both enthusiasm and affection. He was as successful in presenting the elemental or fundamental truths of science as he was in advancing its range and attacking new problems. A keen golfer and able to apply mathematical analysis to the flight of a golf ball, on one occasion when staying at St. Andrews, his guest, Helmholtz, then about fifty years old, wrote: "Mr. Tait knows of nothing else here but golfing. I had to go out with him; my first stroke came off—after that I hit either the ground or the air. Tait is a peculiar sort of savage; lives here, as he says, for the muscles, and it was not till to-day, Sunday, when he dare not play and did not go to church either, that he could be brought to talk of rational matters." With Balfour Stewart, however, Tait published a book on the "Unseen Universe" which, while it called forth praise and censure, fulfilled the authors' purpose to show that the common statement that "Science is incompatible with religion" was baseless. Tait's correspondents included Kelvin, Maxwell, Cayley, Hamilton, and many other scientific men of the Victorian age.

THE Paris correspondent of the *Morning Post* states, in the issue of April 10, that news has been received in Russian circles in Paris that Profs. Michaelovsky and Saposhnikoff have been arrested and exiled to the far north of Russia. The reasons for their arrest and exile are unknown in Paris. Prof. Saposhnikoff is well known in scientific circles in Great Britain and this news will cause much sorrow to his friends here. He was frequently in England and took part in the International Congress of

Applied Chemistry held in London in 1909. He also spent considerable time in Great Britain during the War, and for his services at that time he was made a Knight Commander of the Order of St. Michael and St. George. In the early days of the revolution, Prof. Saposhnikoff was imprisoned for several months in Petrograd and his two sons were shot. After his release he held several important posts and visited the Continent and England on official business for the Soviet Government. He was professor at the Michael Ordnance Academy and also at the Institute of Roads and Communications. He was a diligent worker and published much work of scientific value.

PROF. SAPOSHNIKOFF is a pioneer in the chemistry of explosive substances. His work on the decomposition of nitrocellulose and his investigations in connexion with the nitrating properties of nitric acid in sulphuric acid with reference to the vapour tension of the mixture were acknowledged as important contributions by all explosives chemists. He worked on a variety of other subjects of purely scientific interest and was also the author of a number of papers on metallurgy, including investigations on the microstructure and physical properties of alloys. His papers during the period 1903-12 occupy a column in the index of the *Journal of the Chemical Society*. The results of his investigations appeared in Russian, German, and French journals, and since the War he has contributed many papers on scientific and technical subjects, which have been published in Russia. Prof. Saposhnikoff is sixty-three years of age and has a record of highly valuable scientific and technical work which is recognised and appreciated by all scientific workers in Europe. It is little short of disastrous that the world, as well as Russia, should be deprived of the services of a man who is still capable of doing excellent work for the benefit of humanity.

IN our issue of April 18, p. 600, we printed a very brief account of the history of the Paris Observatory, prompted by the reports in the daily press that the Observatory was closing down and that a new national observatory was to be built in the Durance region of Provence. These reports, it seems, are incorrect and we much regret having given them further currency by repeating them. M. Ernest Esclançon, Director of the Paris Observatory, has written explaining the present position and prospects of the Observatory, and we cannot do better than reproduce his words: "Il n'est nullement question d'abandonner l'Observatoire de Paris, bien au contraire. Nous demandons seulement qu'une grande succursale de cet observatoire soit créée en Provence où le ciel est particulièrement beau; cette succursale serait dotée d'instruments puissants et modernes, notamment de grands télescopes. L'Observatoire de Paris garderait toute son importance; un grand nombre de services d'observation y seraient conservés, notamment le service méridien, le service de l'heure, le service des équatoriaux pour les observations d'étoiles doubles; le service des observations solaires installé à Meudon, etc. En outre, l'Observatoire de Paris centraliserait les

documents que les astronomes iraient recueillir dans la succursale en Provence, étudierait ces documents, en tirerait les conclusions ; en un mot, l'Observatoire de Paris, en plus des services d'observation qui y seraient conservés, constituerait comme le cerveau de l'organisation d'ensemble. Mais au surplus, tout cela reste pour le moment à l'état de projet, et aucune décision n'a pu être prise puisque les crédits nécessaires pour cette réalisation ne sont pas encore votés, et qu'actuellement, nous ne disposons pas des moyens pécuniaires indispensables pour mettre ce projet à exécution." We welcome this very clear statement by M. Esclançon and trust that funds will be quickly forthcoming to enable the realisation of the scheme he has outlined.

THE official report on the Hawkes Bay earthquake of Feb. 3 has been received from Lord Bledisloe, Governor-General of New Zealand. The loss of life (212 persons) was due mainly to the fact that the centre of the earthquake—somewhere beneath the Pacific Ocean—was not far distant from two towns, Napier and Hastings, containing between them a population of about 35,000. The shock was felt over a great part of the North Island and the northern district of the South Island, while the area over which material damage occurred extends from near Gisborne on the north to Waipawa on the south, and from Tarawera on the west to the Pacific Ocean. The houses that generally withstood the shock were those of wood or reinforced concrete. Brief but interesting accounts of the Murchison earthquake of June 17, 1929, are contained in the Report of the Dominion Astronomer and Seismologist for the year 1929 and in an article on the "Seismology of New Zealand", published in the *New Zealand Official Year-book* for 1931. The map of the isoseismal lines shows that, except for very small areas in the extreme north and south, the earthquake was felt throughout both islands. The movement along a fault near Murchison raised the ground on the east side about fifteen feet and shifted it about nine feet to the north-west. Recent levellings show that the block is now sinking back somewhat irregularly, a movement that is no doubt responsible for the after-shocks felt so frequently in the central area. Of these, no fewer than 632 were recorded by the end of the year at the Wellington Observatory.

THE annual exhibition of the Television Society was held on April 15 at University College, London. The number of exhibits was greater than in previous years. The trend of development is in the direction of large screens with projection methods suitable for large audiences. The Tuke cup was awarded to R. Wilson and A. A. Waters for an excellent television equipment with a mirror drum receiver and screen projector. In this system the person being televised is not dazzled by excessive light, and he can be seen at the same time as the image on the screen. It worked very satisfactorily, and the receiving set is small and quite ornamental, which we consider a great step in advance. In television between places about a hundred miles apart, 'echo images' are sometimes observed, one

image being partly superposed on the other. T. H. Bridgewater showed how this phenomenon can be used to determine the height of the Kennelly-Heaviside layer. The research laboratories of the General Electric Co. showed two gas discharge tubes which operated directly from the 200-volt alternating current mains without using high-tension transformers. The sodium tube gives a yellowish light and the neon-mercury vapour in a uranium glass tube gives a bluish white light. We were impressed by the educational exhibits. Printer's blocks were prepared showing the amount of definition possible by different television scanning systems, and simple diagrams illustrated the underlying principles of television. The G.P.O. exhibited excellent photographs received in Great Britain from Austria, Denmark, Germany, and Sweden by the Siemens-Karolus-Telefunken system. The British Stenode Radiostat Corporation showed various steno-de models of radio-receivers of very high selectivity.

As there is little more than one per cent of the world's main line railways electrified, there is plenty of scope for electrical engineers to convince the railway companies of the advantages of electrification. There is general agreement that suburban and tube railways should be electrified. Where the trains are continually starting and stopping, electrification enables the lines to carry far more passengers and to accelerate the service. In underground tunnels and in tube railways, the noxious vapours generated by steam trains makes electrification compulsory. After the War the Austrian Government obtained an international loan, a part of which it set aside for main line electrification. In 1927, however, the work was stopped and the money used for other purposes. Large portions of the scheme were therefore left unfinished. One of the reasons was the lowering of the price of imported coal, and another was possibly that too favourable a view had been taken of the costs of electrification. In *World Power* for March, Dr. M. G. Say discusses these aspects of railway electrification. Main line electrification is not favoured in Great Britain because coal is cheap, the gradients are seldom severe, and there are scarcely any main lines where the tunnels render steam haulage hazardous. The London-Brighton line, 51 miles in length, will be the longest electrified route in Great Britain. It will be worked by multiple-unit trains of six coaches. The present steam train service of two million train-miles per annum will be replaced by an electric service of nearly five million train-miles. The conversion cost is estimated at about £50,000 per mile, and energy outside the London area will be obtained directly from the national grid network. The maximum speed of 65 m.p.h. will enable the quickest trains to have an average speed of 54 m.p.h. If this line is successful, it will probably be the forerunner of further electrified zones eastwards and westwards from Brighton and Worthing.

THE first and the most useful of the commercial applications of radio communication was to marine navigation. In his chairman's address to the wireless section of the Institution of Electrical Engineers,

published in the March number of the *Journal* of the I.E.E., C. E. Rickard gives interesting data of the progress that has been made. The international legislators who frame the rules and regulations for wireless communication insist that marine radio telegraphy shall progressively improve and, so far as economically possible, keep in step with modern progress. About fourteen thousand of the world's ships are now fitted with wireless apparatus. Of these, about ten per cent are fitted with valve transmitters and the rest with spark only. Spark transmitters of 100 watts input power are generally considered to provide the best form of emergency apparatus, probably because it is thought that a strident and hoarse cry for help will attract the most attention. By the new international regulations, no spark transmitters of greater power than 300 watts input power are to be installed. From now onwards, therefore, the percentage of high-power spark stations on board ship will steadily decrease. There are about twelve thousand ships fitted with automatic alarm devices which enable a ship's operator to be called to his post when he is not on watch. At the end of last year, about five hundred ship's lifeboats were fitted with wireless. Vessels of less than 1600 tons gross tonnage which do not carry passengers are under no legal obligation to have radio apparatus. Many of them, however, are fitted with radio, as it is found of great value not only in navigating the ship but also in carrying on their business. In particular, trawlers, whalers, and other vessels connected with the fishing industry are generally equipped with radio. There are now more than 200 automatic radio beacons around the coasts of the leading maritime countries of the world.

THE new Welland Ship Canal between Lakes Erie and Ontario, which was opened on July 1, 1930 (*NATURE*, July 5, 1930, p. 30), allows vessels of ocean liner size to pass round Niagara Falls and removes one of the two great barriers that have kept deep-sea shipping out of the Great Lakes. Between the lakes and the ocean only the barrier of the Lachine Rapids, round which smaller vessels alone can pass, remains. But the largest lake vessels, about 600 feet in length, are now able to get into Lake Ontario. There are 21 electric drawbridges over the new canal, some of them spanning the canal's full width of 320 feet. Unlike the Panama Canal, where only the locks are illuminated, the entire length of the canal is lighted like a city street. The Welland locks are tremendously deep. Three of them give a total lift of 140 feet in less than three-quarters of a mile. The electrical equipment is built by the Canadian Westinghouse Co., Ltd. The locks have corridors, steps, and electrically lighted mooring platforms, half-way down the sides. The attendants check the way of the ship as it sails in at the lower level. As the water comes in, the men retreat and the lock is flooded. The electric lamps in their water-tight globes are left burning far underneath the water. One end of the canal is 326 feet higher than the other. If it were not for the lock-gates, Lake Erie would run into Lake Ontario, forming a new Niagara Falls. In the unlikely event of a lock-gate failing, there is a boat with

powerful hoisting gear always ready to plug the canal by an emergency gate.

A CONFERENCE of teachers and other professional experts in prehistoric archæology will be held in Bern in May, at the personal invitation of Prof. Bosch-Gimpera, of Barcelona, to discuss the future organisation of prehistoric studies. This conference arises out of suggestions which were discussed at the Congress of Archæology held at Barcelona in 1929, when the question was raised whether, in view of the situation which had arisen in regard to international congresses in archæology, it was desirable that the prehistoric section of the Congress of Archæology should be enlarged. It then appeared that there was a desire for a quite new organisation. Since 1929, however, there has been a fundamental change in the situation. The attempt made by the Institut international d'Anthropologie of Paris to revive, and at the same time absorb into its own machinery, the old pre-War Congrès d'Anthropologie et Archéologie préhistorique, by issuing a joint invitation to the congress at Lisbon in 1930, would appear to have strengthened the dissatisfaction of archæologists with the present position rather than have reconciled them to a congress which, while international in name, is attached to a permanent organisation, bound under French law to be predominantly French in composition. As a result of inquiry, it would appear from a report published by Prof. J. Myres in the April issue of *Man*, there is a widespread agreement among archæologists of all nationalities, including even some French, that future congresses should be entirely separated from the Paris Institut and, in fact, that the old Congrès should be revived in accordance with its former statutes.

PROF. MYRES goes on to forecast the probable lines of discussion at Bern in the light of consultations and correspondence with Continental archæologists. The questions to be settled will be whether international organisation in the future should provide for a single congress to cover all human sciences, anthropology, ethnology, technology, as well as prehistoric archæology, or should (at any rate at present) a congress be organised to deal with prehistoric archæology only; and, secondly, whether an entirely new congress on fresh principles should be organised, or should the pre-War Congrès d'Anthropologie et Archéologie préhistorique be revived by friendly agreement with the surviving representatives of the old Congrès and the Paris Institut as an entirely independent institution. On these points the attitude of British archæologists is set out in a series of resolutions passed at a recent meeting of the Joint Committee on Teaching and Research of the Royal Anthropological Institute, a fully representative body. In these, the desire is expressed that the Congrès should remain in being as an independent body, and the Committee conveys to the meeting at Bern the hope that any future congress for prehistoric archæology will admit the more general studies of anthropology and ethnology, which illustrate all the various aspects of prehistoric archæology.

UNDER the auspices of the Museums Association and the Carnegie United Kingdom Trust, an exhibition of

museum specimens specially prepared for circulation to rural areas was held in the County Hall, Westminster, on Jan. 28-30. The exhibition aimed at showing, for the information of museum curators, educationists, and the public generally, what can be done and what is being done to extend the influence of museums to country schools and to the people. Nine provincial museums, the Canadian Commission, and three United States museums sent exhibits, which represented very fairly the possibilities of this branch of service, as well as the limitations imposed upon it by difficulties of size and transportability. It is very gratifying to know how greatly this museum work is appreciated in the districts where it prevails. The *Museums Journal* for March associates with an account of the exhibition, photographs of some of the series shown. One of the great difficulties of curators is to obtain, at reasonable cost, cases at once suitable for exhibiting specimens (often of considerable depth) and for bearing the strains of travel by rail or carrier. May we suggest that the Museums Association would play a most useful part were it to arrange for the mass production of a standard transportable case, probably after the type used by the American Museum of Natural History, which, to us, seems best to meet requirements.

A LIST of the industrial research laboratories of the United States of America has recently been published as *Bulletin* No. 81 of the National Research Council (Publication Office, National Research Council, Washington, D.C. No price). It is the fourth edition of this bulletin and shows a great increase, in the number of industrial research centres listed, on the third edition of 1927. The increase in number is about 60 per cent and may be indicative of either the great progress of industrial research in the United States or a greater interest of such research laboratories in this compilation by returning data for publication, or both. The list is of industrial laboratories only and does not include, therefore, laboratories connected with the Federal, State, or municipal governments, or with educational institutions. Since, as the compilers of this bulletin admit, such laboratories often do attack problems of industrial importance, it seems a pity that they were not included. These laboratories usually are listed in other publications; yet their inclusion probably would have added to the value of this bulletin, by making it even more comprehensive. The data given under each laboratory were furnished by the director of the laboratory, in reply to a questionnaire, of which the chief parts apparently were: name and address of the company (under which the laboratory is listed), director and research staff, account of research work, and, in a few cases, development work. Following this list of industrial companies' laboratories, is an alphabetical list of directors and their addresses. Then comes the geographical distribution of the laboratories, grouped into towns and States. Finally, there is an alphabetical grouping of the subject matter of research. The last two lists form indexes to the whole volume, thus making reference comparatively easy. So far as we know, there is no similar list of industrial research laboratories

in Great Britain; such a list should prove of great value as a reference guide to all types of research workers.

It is announced that the Whipsnade Zoological Park will be opened to the public on Saturday, May 23. The park will be open every day afterwards, including Sundays, from 10 A.M. until lighting-up time.

A SMALL earthquake was recorded at Kew Observatory at 17 hr. 3 min. 9 sec. G.M.T. on April 15. It is estimated that the disturbance originated 1300 miles away, the epicentre being under the Atlantic to the north of the Azores.

THE Faraday Medal (tenth award) will be presented to Mr. Charles H. Merz at the ordinary meeting of the Institution of Electrical Engineers to be held on Thursday, April 30. The presentation will precede the twenty-second Kelvin Lecture, which will be delivered by Prof. W. L. Bragg on "The Architecture of Solids".

THE annual visit to the Research Station, Long Ashton, Bristol, will take place on May 7, when the ciders made during the season 1930-31 will be displayed and the fruit plantations of the Station will be open to visitors from 11 A.M. to 4 P.M. Demonstrations of small horticultural machines and implements, including cultivators, spraying and dusting machines, etc., will be in progress throughout the day.

THE Pontifical Academy of Sciences (Nuovi Lincei) is offering a prize of 10,000 lire for a critical dissertation on the law of Mendel and the chromosome theory. Essays must be unpublished and may be written in English, French, German, Spanish, Italian, or Latin. They may be signed or written under a pseudonym, and must reach the Pontifical Academy of Sciences, The Vatican City, before Oct. 30. The award will be announced at the first meeting of the Academy in December.

THE work of the National Physical Laboratory is illustrated by a series of transparencies now on view in the entrance hall of the Science Museum, South Kensington. They include illustrations of a radium safe, one million volt spark, internal view of the high voltage laboratory, and the primary standard barometer. There is also an exhibition illustrating the occurrence of earthquakes and instruments used in their measurement, with the records obtained at Kew from a number of recent earthquakes. Both series of exhibits will be on view until the end of June.

THE Linnean Medal for 1931 of the Linnean Society of London has been awarded to Prof. Karl E. von Goebel, professor of botany in the University and Director of the Botanical Gardens, Munich. The following have been proposed as foreign members of the Society: Prof. Carl Christiansen, of Copenhagen; Dr. K. E. Correns, Director of the Kaiser Wilhelm Institute of Biology, Berlin; Dr. L. Diels, Director of the Botanical Gardens, Berlin; and Prof. F. A. F. C. Went, professor of general botany in the University of Utrecht.

SIR JAMES JEANS left England on April 18 for the United States, primarily to receive the Franklin Medal

from the Franklin Institute, Philadelphia. On May 18 Sir James will deliver a lecture in Washington under the auspices of the Carnegie Institution. He will visit the Bartol laboratories in Philadelphia on May 19, and on May 20 will receive the Medal from the Franklin Institute and there deliver his lecture. This will be followed by three lectures, at Princeton (May 23), Harvard (May 25 or 26), and Yale (May 26 or 27), which are being given under the auspices of the Franklin Institute. Sir James will sail for England towards the end of May.

THE preliminary programme of the forty-second congress of the Royal Sanitary Institute, which will take place at Glasgow on July 4-11, has recently been issued. Sir Henry Mehan will preside over the congress, which will be divided into the following sections: preventive medicine; architecture and engineering; maternity, child welfare, and school hygiene; hygiene of food; hygiene in industry; veterinary hygiene, and national health insurance. Five conferences have also been arranged, of sanitary authorities, medical officers of health, engineers and surveyors, sanitary inspectors, and health visitors. The inaugural address will be given by Sir Henry Mehan, and the congress will terminate with a lecture by Major Walter Elliot on "A Continuous Health Policy". A health exhibition in connexion with the congress is projected, and there will be opportunities for visits to hospitals and other institutions and places of local interest.

THE preliminary programme of the Second International Congress of the History of Science and Technology is now being sent out, and we note that it is intended, as the subject-matter of the Congress is so extensive, that members should speak to three general themes, namely: (1) The sciences as an integral part of general historical study; (2) Historical and contemporary inter-relationship of the physical and biological sciences; (3) Inter-dependence of pure and applied science. For the afternoons and evenings, visits have been arranged, among other places, to the Royal Society, Royal Institution, Royal Observatory (Greenwich), National Museums, Institute of Historical Research, and Down House, Kent. There will also be excursions to Oxford and Cambridge. Most satisfactory responses have already been made and the Congress bids fair to be a very great success. Further particulars will be furnished upon request by the honorary secretary of the Congress, The Science Museum, South Kensington, S.W.7.

WITH reference to the article on medals awarded for scientific achievement, published as a supplement to NATURE of Nov. 15, 1930, and the additional list in NATURE of Mar. 7, our attention has been directed to a further medal award. In 1928 the Bombay Branch of the Royal Asiatic Society established a silver medal, to be given triennially to a member considered to have made the most signal contribution in Oriental scholarship during the previous three years. The first medal will be presented this year to Mr. S. V. Karandikar, for his book "Hindu Exogamy:

A Systematic Study of Hindu Marriage Outside the Gotra". This book was noticed in NATURE of Mar. 15, 1930.

WITH the December number, 1930, the *Tropical Veterinary Bulletin* ceased publication, and in its place the Imperial Bureau of Animal Health is publishing a new journal under the title of the *Veterinary Bulletin*. This includes the matter of the *Tropical Veterinary Bulletin* and, in addition, the diseases of temperate climates. The first volume of about 384 pages is being issued in four quarterly parts, commencing April 1, but from January 1932 the journal will be published monthly, and the volume will run to about 600 pages. The subscription price is £1, post free, which should be sent to the Imperial Bureau of Animal Health, Veterinary Laboratory, Ministry of Agriculture and Fisheries, Weybridge, Surrey, England.

A USEFUL classified catalogue of new and second-hand books on medical subjects has just been issued by Messrs. W. and G. Foyle, Ltd., 119 Charing Cross Road, W.C.2. It can be had free of charge upon application.

WE have received a volume of collected reprints of "Researches published from the Wards and Laboratories of the London Hospital during 1930". It is edited by Mr. Hugh Cairns, and contains 39 papers dealing with a variety of subjects—clinical medicine and surgery, radiology, pathology, bacteriology, and physiology. Five papers deal with psittacosis or parrot fever. The paper by Bedson and Western shows that the virus is a filterable one, though probably of relatively large size, and that the guinea-pig is susceptible to the virus and may be employed for maintaining strains.

A CATALOGUE (No. 456) of nearly 1300 second-hand books of science has just been received from Messrs. Bowes and Bowes, 1 Trinity Street, Cambridge. The subjects are arranged under the headings of journals (general), agriculture, anthropology and ethnology, biography and travel, biology (with microscopy, evolution, and heredity), botany (with a small collection of herbals), chemistry and physics, entomology (with arachnida, and crustacea), forestry and gardening, mineralogy and geology, mollusca, ornithology, zoology (general, with parasitology), and addenda (all subjects). The prices asked appear very reasonable.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—A head of the senior engineering department of the Hull Municipal Technical College—The Director of Education, Education Offices, Guildhall, Hull (May 2). A senior lecturer in electrical engineering and an assistant lecturer in marine engineering at the Liverpool Central Municipal Technical School—The Director of Education, Education Office, 14 Sir Thomas Street, Liverpool (May 2). A lecturer in mathematics with subsidiary physics and a lecturer in building technology and science at the Rugby College of Technology and Arts—The Principal

and Organiser of Further Education in Rugby, 61 Clifton Road, Rugby (May 8). An assistant in the chemistry department of the Coventry Municipal Technical College—The Director of Education, Council House, Coventry (May 22). A professor of anatomy in the University of Birmingham—The Secretary, The University, Birmingham (May 30).

A university student in physiology in the University of London—The Academic Registrar, University of London, South Kensington, S.W.7 (May 31). A temporary lecturer in chemistry at the Huguenot University College, Wellington, Cape of Good Hope—Miss M. S. H. Kilroe, St. Paul's Girls' School, Brook Green, W.6.

Our Astronomical Column.

Comets.—*Pop. Astr.* for April contains photographs of comet Schwassmann-Wachmann before and after the recent outburst, reported in *NATURE* for April 11. They were taken by Prof. G. van Biesbroeck with the 24-inch reflector at Yerkes Observatory. The first was taken on Dec. 16, 1930, when the comet's magnitude was about 16: in spite of its faintness, Dr. F. E. Ross has managed to bring out an appreciable amount of coma by making successive photographic copies. The second photograph, taken on Feb. 11, 1931, shows the comet as a small, bright disc of magnitude 12.5. Examination of the original negative showed a little diffused light at the edge of the disc, but the extended coma had vanished. By Mar. 10 the comet had again sunk to magnitude 16, and the outer coma was again visible. On Feb. 11 the comet was 7.05 units from the sun, 6.33 from the earth. Prof. van Biesbroeck is confident that it will remain visible round the whole of its orbit, which will be a new cometary record. It is now within two years of aphelion passage.

Dr. K. Reinmuth, of Königstuhl Observatory, announces, in *Astr. Nach.* 5779, that he has detected images of a comet on plates taken in March 1902. It was 1.5' in diameter with a faint nucleus and a short tail in P.A. 220°; magnitude 12.0. He suspects that it may be a periodic comet, but it has not been identified with any known one. The positions are given in the hope that other images may be found on old plates.

G.M.T. 1902.	R.A. 1902.0.	N.Decl. 1902.0.
Mar. 4 ^d 10 ^h 19.9 ^m	11 ^h 4 ^m 37.03 ^s	1° 13' 34.3"
„ 5 9 38.3	11 4 13.62	1 15 23.5
„ 5 10 22.2	11 4 13.12	1 15 27.7
„ 5 11 5.8	11 4 12.32	1 15 32.5

Another Interesting Schwassmann - Wachmann Object.—These two astronomers of Bergedorf Observatory are the joint discoverers of several interesting comets. The latest of their discoveries is probably a minor planet; it attracted considerable attention from its rapid retrograde motion of $-1^m 42^s$ daily and its highly inclined orbit. *Circ.* 413 of Astron. Rech. Instit. contains the following preliminary orbit, computed by Dr. A. Kahrstedt:

Epoch 1931 March 24.0 U.T.	
M	19.6013°
ω	134.2787
Ω	0.0056
i	33.1919
ϕ	21.4017
Period	5.524 years
log q	0.2977

The aphelion is about a unit inside the orbit of Jupiter, so the perturbations will be considerable. The magnitude is 13.

Parallaxes of Stars at different Galactic Latitudes.—*Publication* No. 45 of the Groningen Laboratory has a paper on this subject by Dr. P. J. van Rhijn and B. J. Bok. Its object is a re-determination of the mean secular parallaxes of stars of various magnitudes

grouped with reference to their galactic latitudes. It is concluded that the distances of the faint stars in high galactic latitudes were over-estimated in the similar research in *Publication* No. 29. The proper motions have been re-investigated, using all the recently published star-catalogues and some special investigations for faint stars by Alden, P. van de Kamp, and A. van Maanen. The effects of galactic rotation have been taken into account, using Oort's formulæ of correction.

The following is a summary of the resulting mean secular parallaxes:

Mag.	Lat. 0° to 40°.	Lat. 40° to 90°.
7.0	0.033"	0.047"
9.0	0.017"	0.027"
11.0	0.0086"	0.015"
13.0	0.0045"	0.009"

Tables are given to facilitate the deduction of absolute proper motions of faint stars from their relative values as derived from photographs. They include the effect of differential galactic rotation.

The Distant Faint Companion of Castor.—*Bull. Astr. Inst. Netherlands*, 6, No. 216, contains a full study of this faint star which belongs to the system of Castor, and is, like the two bright components, a close binary; it is also an eclipsing variable. The two stars composing it appear to be practically identical in size and brightness; each of them is 432,000 km. in radius, and of mass 0.593 sun, density 2.468 sun, surface brightness 3.45 magnitudes darker than the sun, total brightness 4.48 magnitudes fainter than the sun. Adopting 5741° as the sun's effective temperature, that of Castor C is found to be 3400°, in good agreement with its type of spectrum, which is M. Its colour index is 1.52 magnitude. The orbit appears to be circular; the full period of revolution (that is, double the period of light-variation) is 0.8142822 day, and the radius of the relative orbit 2,701,000 km. The absolute visual magnitude of each component is 9.15 magnitudes. It is noted that the masses and magnitudes accord well with Eddington's mass-luminosity relation.

The Distances of the Cepheid Variables.—A recent note in this column described B. P. Gerasimovic's researches on this subject, leading to the conclusion that Prof. Shapley's absolute magnitudes needed to be corrected by +1.0 mag., and his distances reduced in the ratio 0.631 to 1. *Astr. Nach.* 5775 contains a research on the same subject by A. Kipper. It makes use, in addition to proper motions and radial velocities, of the fact that the angular radius of a star of known colour index can be deduced from its apparent magnitude. By applying this to different stages of the Cepheid variation, the change of angular radius can be correlated with the radial velocity. From a combination of all the methods he finds +1.1 as the correction to Shapley's absolute magnitudes. This is so close to the 1.0 of Gerasimovic that it gives ground for receiving both results with some confidence.