

Current Topics and Events.

THE report of the Broadcasting Committee appointed on April 24 by Sir William Joynson-Hicks, then Postmaster-General, has now been issued, together with a statement from the present head of the Post Office, Sir Laming Worthington Evans. The committee had to consider: (a) Broadcasting in all its aspects; (b) the contracts and licences which have been or may be granted; (c) the action which should be taken upon the determination of the existing licence of the Broadcasting Company; (d) uses to which broadcasting may be put; and (e) the restrictions which may need to be placed upon its user or development. The Committee states that broadcasting is of value for instruction and entertainment and has great potentialities, and it is recommended that a Broadcasting Board should be established by statute to advise the Postmaster-General, though broadcasting services should remain in the hands of non-Government bodies working under Government licence. The revenue required to maintain broadcasting services is to come mainly from the receiving licence fee. The Committee considers that the existing fee of 10s. a year is sufficient for the present, and that three-quarters of the receipts might go to meet the costs of broadcasting. As regards licences, a uniform and simple type of licence obtainable without formalities and with practically no limitations on the apparatus is suggested for all users. Extension of broadcasting hours and of the wave-lengths in use (350-425 metres) so as to cover the range 300-500 metres, excluding the band 440-460 metres, is also recommended. The Committee considers the immediate application of its scheme desirable, and suggests that the British Broadcasting Company's licence be continued and extended on a modified basis. No recommendation is made on the subject of the protection of British apparatus against foreign competition, the Committee stating that the matter should be dealt with by Parliament.

ARISING out of our recent article on "Inventors and Patents" (*NATURE*, September 8, p. 349), it has been brought to our notice that the interest of patentees and inventors has been made the special aim of the Institute of Patentees (Incorporated). This association was founded in the year 1919, and within a short space of time enrolled some twelve hundred members. It has set up a body of technical advisers to assist the inventor and prevent him from wasting money on useless propositions. In the case, however, of those inventions which contain germs of value, even though the inventions are but crudely presented, the Institute advises their originators as to the best method of developing their productions. To a certain extent, the Institute also acts as a clearing-house, at the same time aiming at submitting to manufacturers such inventions only as have reasonable commercial prospects. In favourable cases, assistance will be given in the direction of obtaining capital for the exploitation of inventions. In order to reduce considerably the huge expense

generally involved in the settlement of disputes proceeding from inventions, a Court of Arbitration has been constituted to which contentious questions may be remitted. At the present time, the Institute is concentrating its efforts on securing an Empire patent, whereby the cost of protecting an invention throughout the British Empire may be materially reduced. At the general meeting in March of this year, the chairman in his presidential address announced that the Institute was recognised by the Board of Trade, and that certain inquiries addressed to that Department were referred immediately to the Institute. It is stated that the Institute is in no way a trading or profit-making concern, for the members of its various advisory and other committees give their services gratuitously. Two classes of members are enrolled. An annual subscription of two guineas secures full membership, while associate-membership for the annual subscription of one guinea is reserved for the genuinely poor inventor. Further particulars are obtainable from the organising secretary at 44 Russell Street, London, W.C.1.

BEFORE the War, Capt. C. W. R. Knight, as a photographer of birds and their nests, was already in the front rank. Being a practised climber, he did not confine his attention to species that build near the ground, and more recently he has specialised and taken the kinematograph as well as the ordinary camera "into the tree-tops" with most successful results. On Monday last, at the Polytechnic Hall, in Regent Street, Capt. Knight used a number of his films and some lantern slides to illustrate to a specially invited audience a lecture which will be repeated daily for the benefit of the public for several weeks to come. There is no need at the present time to emphasise the usefulness of films as records of fact (in contradistinction to portrayals of fiction) where motion has to be illustrated, or the advantage of having them verbally described. Capt. Knight was able to show the climbing of woodpeckers, the rapid flight of birds of prey when catching food for their young, the plucking of the victim, its partition among the nestlings of tender age, the throwing of it whole to them to scramble for when they were older. He also showed special records of young birds exercising their wings and getting into training for flying, as well as their hesitation before they could make up their minds to launch themselves for the first time in the air. Many points of incidental interest were mentioned by the lecturer. The finding of a swift in the nest of a hobby was used as an argument in favour of the latter bird being the swiftest of our hawks. Stress was laid upon the amount of vegetable food eaten by the greater spotted woodpecker; the writer has known of this bird taking coconut intended for tits, but Capt. Knight described the extraction of kernels from hazel-nuts fixed in the crevices of bark, after the fashion of the nuthatch. Owls were dealt with, as was the daily life of a rookery, while the rearing of young herons was considered in detail. All who are interested in British wild life should go

to Capt. Knight's lecture, for they will thus add to their knowledge besides gaining a great deal of enjoyment.

ACCORDING to the latest estimates (given in the *Times* for September 28 and 29), the loss of property in Tokyo and Yokohama due to the earthquake of September 1 is somewhat less than was at first supposed. In Yokohama, about three-fourths of the houses (including those of greatest value) were destroyed; those which remain are apparently but a fringe of small dwellings. It was on the flat levels, intersected by canals, in which the business and shopping quarters were situated, that the destruction was greatest; but on the Bluff, where the foreign merchants lived, there was also much damage done, many of the houses having fallen into the valley below. In Tokyo, out of about 335,000 houses destroyed, only 11 per cent. collapsed under the earthquake shock; the remainder were burned. It was again in the densely crowded riverside districts that the worst of the destruction took place. It has been suggested that Yokohama should be rebuilt in a safer district, but the site of the city is obviously determined by the harbour, which has not been materially damaged. Moreover, though there is no absolutely safe area in such a seismic zone, the safest for many years to come, and perhaps for several centuries, may be the epicentral area of the recent shock.

WE are glad to note that British firms are adopting more and more the principle, on the lines of many American firms, of helping their clients in every possible way—and indirectly the general public as well—by the issue of thoroughly scientific literature written by experts. A good example of this is a recent publication, "Water Treatment," by Messrs. Brunner, Mond and Co., Ltd., the well-known chemical manufacturers of Northwich, Cheshire. This booklet, which is a production of the firm's research staff, and may be obtained free of charge by writing to the above address, gives a most lucid and concise explanation of the whole principles underlying the hardness and treatment of water, especially for boiler feed purposes, and should prove invaluable to engineers and all others in charge of boiler plant. It is divided into fourteen sections, and particularly good are those devoted to the cause of hardness, the soda ash and lime treatment, and the choice and method of operation of softening plant in general. Also of great interest are the sections dealing with the more difficult aspects of water treatment, about which the average chemist is none too clearly informed, such as the presence of free carbon dioxide and sodium bicarbonate, acids, whether mineral or of the peaty acid variety, oil, and especially the removal of the last traces of magnesium, for which the use of alumino-ferric is recommended.

IN 1905 the Meteorological Office was able for the first time to make some provision for the regular investigation of the upper air over the British Isles. Investigation had previously been carried out privately, in some cases with the assistance of the

British Association and of the Royal Meteorological Society. Mr. W. H. Dines, who had taken a leading part in the practical development of the investigation, agreed to supervise the work for a nominal fee and to provide, free of charge, the facilities which his residence afforded for work with kites and balloons. After 1913 Mr. Dines removed to Benson in Oxfordshire, and for the past ten years he has continued there the upper-air work which he had carried out so successfully at Pyrton Hill on the Chilterns and at Oxshott in Surrey. Largely as a result of these investigations, England has gained a position in the forefront of the investigation of the upper atmosphere. At the end of June 1922, Mr. Dines retired from active supervision of the work, although he continued generously to give facilities for investigation to be carried on at Benson. Mr. Dines's experience indicated that open country north-west of Oxford was the most suitable place for a permanent observatory, but financial reasons made this impossible; it was accordingly arranged to utilise Kew Observatory, where the disadvantage of position would be to some extent compensated by proximity to the central office and contact with other branches of meteorological work. The transfer will probably be made in a few days. The Observatory at Benson will then be closed. The regular daily reports in connexion with forecasting will be made at the wireless station at Leafield by the courtesy of the Postmaster-General, while the upper-air investigation will be continued at Kew Observatory.

GREAT activity continues to prevail on the question of the cause and incidence of cancer. The Ministry of Health has recently issued a circular (No. 426) in which the views of a committee of experts are set forth. The circular deals with the characteristic features and natural course of the disease, the extent of cancer mortality and its increase, the proclivity to cancer, chronic irritation as a determining factor in the appearance of the disease, and the diagnosis and the treatment of cancer. The statements made are in harmony with the results of modern scientific inquiry, and the circular should help to counteract a great deal of irrelevant matter which the public has been invited to accept from quacks, cranks and well-meaning persons who do not possess the requisite knowledge. Local health authorities are encouraged to deal with the cancer problem in the best interests of the community.

Die Naturwissenschaften for August 31 contains two articles by Arrhenius and by Freundlich on the life and work of Wilhelm Ostwald, who reached the age of seventy on September 2, as recorded in our issue of August 25, p. 289.

A REVIEW of the adhesives industries appears in the *Chemical Trade Journal* for September 14. The properties, composition, extraction, and sterilisation of animal glues are concisely described. Vegetable glues (*e.g.* from starch), waterproof glues, and various forms of adhesives (*e.g.* sodium silicate adhesives, adhesives from cellulose waste, liquid glues, etc.) are all treated. A solution of glue in acetic acid is the basis of "seccotine."

A REVIEW of the dye-stuffs industry of Great Britain, by Prof. G. T. Morgan, is published in *Chemistry and Industry* for September 14. In this the progress made during and since the War in the manufacture of intermediates and dyes is discussed in great detail, and the article gives a reasoned account of the present position and future prospects of one of the most important British industrial undertakings.

THE autumn conference of the Textile Institute will be held at Leicester on October 18-19. The first day of the meeting will be spent at the Exhibition of Textile Machinery and Textile Fabrics which is being held in Leicester on October 10-20. On the second day, Mr. P. E. King, of the University of Leeds, will present a paper on "Artificial Silks," and later the annual Mather lecture will be delivered by Prof. J. F. Thorpe, who will take as his subject "The Application of Dyes to Fibres and Fabrics." The remainder of the meeting will be devoted to visits to works in the neighbourhood of interest to members of the conference.

THE first paper-mill for producing printing paper and pasteboard from hydrophytes or water-plants on a large scale was started on September 15 in Grossenhain, Saxony. The hydrophytes (Typha, Phragmites, etc.) are made into pulp by a cheap new process of the German Hydrophyte Co., and are said to yield a good material for paper and pasteboard. The reeds grow wild in shallow waters and their removal is desirable in the interests of fishing; in Germany, therefore, as in other countries, large amounts of the raw material are to be had freely. It has been calculated that in Germany alone one million tons of dry reed material can be gathered, thus freeing for other purposes a like quantity of wood up to now used for manufacturing wood pulp and cellulose. Several further works for producing paper pulp from reeds are to be erected in Germany as well as in other countries. It is stated that the same process may also be used for bamboo and similar tropical plants.

THE Gilbert White Fellowship offers an attractive programme for the present session ending January 1924. Meetings and expeditions have been arranged for most Saturdays during the winter; noteworthy events are lectures by Dame Helen Gwynne-Vaughan on "The Mechanism of Inheritance" on November 3 and by Mr. F. R. S. Balfour on "Trees and Flowers of the North-West Pacific Coast" on December 1. The Ramble Section of the Selborne Society has also issued a programme of its fixtures for the next few months (price 6d.). Numerous "rambles" of historic and literary interest are included, mostly in London and its museums. Lectures have been arranged apart from the rambles and among them are "Among the Himalayas," by Mr. F. W. Hodgkinson, on October 31; "Japan, Past, Present and Future," by Prof. Wilden-Hart, on November 7; "In Neptune's Kingdom," by Mr. F. Martin Duncan, on November 14; "Animal Disguises and Camouflage," by Mr. Wilfred Mark Webb, on November 29; and "Nature at Home," by Mr. M. A. Phillips, on December 12. Corre-

spondence relating to the rambles, other than applications for tickets, should be sent to Mr. P. J. Ashton, 72 High Street, Bromley, Kent.

A SPECIAL volume of the *Zeitschrift für Kristallographie*, comprising no less than 640 pages and numerous illustrations and plates, has been published as a testimonial to the magnificent life-work in crystallography of the founder and first editor (for over fifty volumes) of the *Zeitschrift*—Prof. P. von Groth. It consists of contributory memoirs on their most recent original researches by thirty-two authors of repute, mostly well-known contributors to the *Zeitschrift* for many years and old friends of Prof. von Groth. The two British contributors are Dr. Tutton and Mr. Barlow, the former of whom sends a thirty-five-page paper on the completion of his many years' work on the sulphates, selenates, and double salts, in the results of which Prof. von Groth had taken a very deep interest, while the latter sends a paper on the division of space in enantiomorphous polyhedra. The universal character of this remarkable birthday present—for it commemorates the eightieth birthday of Prof. von Groth, which occurred on June 23—will be apparent from the mere mention of the names of a few of the contributors from other lands. First should be mentioned Prof. Niggli of Zurich, who now acts as editor and to whom the greatest credit is due for the organisation of such a memorable testimonial to the great crystallographer; then we have memoirs from Prof. Jaeger of Groningen, M. H. Ungemach of Paris, A. Hadding of Lund, C. Leiss of Berlin, J. Beckenkamp of Würzburg, G. Aminoff of Stockholm, F. Zambonini of Turin, H. Tertsch of Vienna, F. Rinne of Leipzig, C. Viola of Parma, E. Artini of Milan, R. Scharizer of Graz, and others equally famous from almost all the greatest European centres of learning. The value of these papers alone is a noteworthy testimony to the great esteem and affection in which the recipient is held, and their publication as a common dedication at a time like the present should prove a valuable aid to international peace and goodwill. The volume is dedicated to one of the greatest of modern men of science, one of the kindest of men, who ever gave the impulse of his encouragement and approbation to those striving sincerely and earnestly to advance the subject which he had so much at heart.

MESSRS. LONGMANS AND Co. have many science books in their new list of announcements. Among them are "The Action of Alcohol on Man," by Prof. E. H. Starling, with contributions on alcohol as a medicine, by Dr. R. Hutchison; alcohol and its relations to problems in mental disorders, by Sir Frederick W. Mott, and alcohol and mortality, by Prof. Raymond Pearl; and "Galvanomagnetic and Thermomagnetic Effects: The Hall and Allied Phenomena," by Prof. L. L. Campbell (in Monographs on Physics).

THE autumn announcement list of Messrs. Methuen and Co., Ltd., contains many books of scientific interest. Among them we notice "The Principle of Relativity," by Profs. A. Einstein, H. A. Lorentz,

H. Minkowski, A. Sommerfeld, and H. Weyl, translated by Drs. G. B. Jeffery and W. Perrett, consisting of a selection of the more important scientific papers in which the theory of relativity was originally expounded; a new and revised edition of "The Foundations of Einstein's Theory of Gravitation," by Prof. E. Freundlich, translated by H. L. Brose; "Einstein's Theory of Relativity," by Prof. Max Born, translated by H. L. Brose (the book aims at giving a lucid historical account of Einstein's Theory of Relativity); "The Chemical Elements," by F. H. Loring, dealing with recent developments in connexion with the chemical elements along lines which include electron binding processes in atomic structure, in radiation phenomena, and in electromagnetic reactions (the quantum theory and the stationary states of the Bohr atom are illustrated by analogy); "Radioactivity," by Prof. K. Fajans, translated

by T. S. Wheeler and W. G. King; "Crystals and the Fine-Structure of Matter," by Prof. F. Rinne, translated by W. S. Stiles (the book presents a comprehensive survey of the fine-structure of matter as elucidated by the study of crystals); "Practical Mathematical Analysis," by Prof. H. von Sanden, translated by Dr. H. Levy; "The Mechanism and Physiology of Sex Determination," by Prof. R. Goldschmidt, translated by Prof. W. J. Dakin, presenting in concise form a review of the most modern knowledge of the mechanism and physiology of sex determination, and in particular of the theories of Goldschmidt; a translation, by J. G. A. Skerl, of Prof. A. Wegener's "The Origin of Continents and Oceans"; "What is Man?" by Prof. J. A. Thomson; and "The Origin of Magic and Religion," by W. J. Perry, describing briefly the growth and spread of religion and magic.

Our Astronomical Column.

FIREBALL OF SEPTEMBER 7.—Mr. W. F. Denning writes: "About 35 descriptions of this object, which appeared about 7 h. 45 m. G.M.T., were received from Cornwall, Devonshire, and South Wales. It was of considerable size and brilliancy, and it left a trail which remained visible for 10 or 12 minutes, according to several of the observers. A number of the reports which have been received are not of any scientific utility, for they are mere descriptions of the brightness of the phenomenon without including any precise details of the position of the flight and duration. Some of the observations, however, contain all the data necessary for computing the real path of the meteor.

"The radiant point is indicated at $260^{\circ}-12^{\circ}$, and the height from about 69 to 26 miles descending along a course 100 miles in length, at a velocity of 20 miles per second. It extended from south-west of Land's End to about 25 miles west of Lundy Island, and it lit up brilliantly the sea and coast of Cornwall in the district nearly over which the meteor descended."

PROF. LINDEMANN'S THEORY OF THE SPIRAL NEBULÆ.—The *Observatory* for September contains two articles criticising this theory, which suggested that the spirals were clouds of cosmic dust, expelled from the galaxy by light-pressure, and shining by reflected starlight. Prof. Perrine considers the idea of their shining by reflected light untenable, on the ground that at least one of them, N.G.C. 1068, has some bright lines in its spectrum, which show the same radial velocity as the dark ones; in case of reflection the latter would be double the former. Mr. A. C. Gifford notes that the presence of layers of dark obstructing matter in many of the spirals negatives the idea of reflected light from the galaxy, a point which was also made by Mr. Reynolds.

Prof. Perrine agrees with the suggestion of expulsion from the galaxy, but holds that the spirals are no longer merely dust clouds, but that a large number of stars have formed in them by condensation; they are autonomous systems, perhaps 100 light-years in diameter; the novæ in them are supposed to be similar to, but perhaps smaller than, galactic novæ; they may be caused by stars colliding with streams of cosmic dust.

Mr. Gifford notes that Lick Observatory photographs show that the number of spirals approaches a million; assuming with Lindemann that each has a mass of ten thousand suns, we obtain an aggregate mass greater than we can reasonably suppose to have

been expelled from the galaxy, since it exceeds many estimates of the united mass of the galactic stars. He agrees with Perrine in supposing that the spirals contain many condensed stars, and ascribes the novæ observed to collisions of star with star.

SOLDNER AND THE GRAVITATIONAL SHIFT OF LIGHT.—Prof. T. J. J. See and others have lately asserted that J. Soldner had anticipated Einstein in 1801 in announcing the double shift of light-rays passing near the sun. R. Trumpler examines the matter in *Pub. Ast. Soc. Pacific* for August, and shows, as might be expected, that the double value arises solely from an arithmetical blunder of Soldner's, who was of course using the Newtonian Law. Soldner's aim was to find the deflexion due not to the sun, but to the earth. Curiously enough, a second arithmetical blunder caused his result to be ten times too great, *i.e.* 0.001" instead of 0.0001"; both values are far too small for practical measurement.

The charge of plagiarism against Einstein is thus shown to be completely unfounded. Cavendish had investigated the shift at about the same time as Soldner, but did not get the erroneous double value. They both assumed the corpuscular theory of light. The idea that the shift was to be expected on the wave theory came much later.

STAR-GAUGES AT LUND OBSERVATORY.—Nos. 30 and 31 of the *Lund Meddelanden* contain some useful work on star-gauging. The first is a rearrangement of the gauges of Sir William and Sir John Herschel. They are reduced to galactic longitude and latitude, and expressed as star density per square degree in each region measured. References are also given to the sheets of the Franklin Adams chart containing the region; the greatest and least numbers per square degree are 9630 and 20.

No. 31 contains details of the star-counts made at Lund on the Franklin Adams charts. Separate figures are given for each magnitude down to the 15th and for different distances from the centre of the plate. The density per square degree in each zone is also given. It will be remembered that Chapman and Melotte published a similar study of these plates in the memoirs of the R.A.S. However, as there is room for personality in the estimates of magnitude, an independent count is quite useful. At present there is no general discussion of the results of the count, but this will doubtless follow; in the meantime the work is very serviceable for reference.