

SCIENCE NOTES AND NEWS

Daguerre's Discovery.—Photography has become so common to-day that it is difficult to realise the excitement its discovery caused. It was 100 years ago on January 7, 1839, that M. Arago announced to a meeting of the *French Academy of Sciences* (Applied Physics Section), the epoch-making discovery of M. Daguerre. The capturing or fixation of the vivid images made by the camera obscura or dark room was a goal long sought. Previous attempts at using layers of photo-sensitive salts like AgCl had proved quite unsatisfactory and the invention of Daguerre was hailed with enthusiasm by a Committee of the Academy consisting of Humboldt, Biot and Arago. Three of Daguerre's best results were exhibited in the Great Gallery adjoining the Louvre and the Tuileries, and a request was sent to the Council of Ministers for an adequate recompense for this discovery which was a product of several years' hard work.

It is interesting to note that at this very first announcement of the discovery, the value of photography as a precious tool for new investigations in physics and astronomy was fully realised and a picture of the moon was taken by M. Daguerre himself at the request of the Academy.

A relatively new technique in electro-analytical chemistry, is the **Polarographic Method** invented about 16 years ago by Heyrovsky. It is based on the principle that when a continuously increasing potential difference is applied to a solution containing electro-reducible or oxidisable substances, the current passing through the solution shows stepwise increases at finite voltages corresponding to the "decomposition voltages" of the substances present. Under favourable conditions as with a cathode of dropping mercury, steady and reproducible, current-voltage curves can be obtained. The voltage at which any step occurs, or better still the "half-wave potential", i.e., the potential of the dropping electrode against an external reference electrode, is characteristic of some definite electro-reducible substance present in solution. Also, the value of the limiting current of each step or wave, is determined by the concentration of the substance causing it. Thus it is often possible to obtain a simultaneous qualitative and quantitative analysis for several constituents in an unknown solution from a single current-voltage curve. The number of substances subject to polarographic determination is potentially very great, including all the common electro-reducible inorganic ions and a large variety of organic substances. The method is specially suitable for small concentrations (10^{-5} to 10^{-2} molar) and can be carried out with a volume of solution as small as 0.1 c.c. or even less. The principles and theories involved in this highly promising and widely applicable analytical method have been recently reviewed by I. M. Kolthoff and J. J. Lingane

in the February number of the *Chemical Reviews* (1939, 24, 1-91).

M. A. G. RAU.

Artificial Ripening of Fruits with Acetylene.—According to a press note from the International Institute of Agriculture, Rome, the results obtained during the past ten years at different experiment stations, in the United States, the Union of South Africa, Australia, Italy and France, in the use of acetylene for artificial ripening of bananas, tomatoes, citrus fruit, pineapples, plums, etc., justify the use of this process in commercial practice. In this connection, the conclusion of the Marrakesh Experiment Station, Morocco, may be quoted "artificial colouring by means of acetylene gas is a commercial operation that makes it possible to market fruit about ten days in advance of the normal marketable date without in any way affecting its intrinsic varietal qualities". An article published in the *Monthly Bulletin of Agricultural Science & Practice* (1939, 30, 1), deals with the artificial ripening of fruits by acetylene. It is shown that "the action of acetylene is comparable with that of ethylene since its only effect is to hasten natural ripening by stimulating the action of the enzymes that normally exist in the plant".

In a recent number of the *Proceedings of the Royal Irish Academy* (Vol. XLV, Section B, No. 11), Dr. J. Kaye Charlesworth has published an interesting paper on "Some observations on the glaciation of north-east Ireland". The previous work of Dr. Dwerryhouse in 1923 on the glacial geology of this area had already established two important conclusions: (1) that of an early Scottish glaciation of north-east Ireland, the limits of which lay west of the present area; and (2) that of a subsequent union of Scottish and Irish ice-sheets which formed confocal hyperbolæ, more or less symmetrically disposed about Lough Neagh. The present study by Dr. Charlesworth deals with the way in which the ice disappeared from the Lough Neagh area and the valleys of the Bann, Main and Lagan, involving a detailed mapping of the fluvio-glacial sands and gravels which Dwerryhouse had largely neglected. As a result of this work, the author has shown many other things, that the drumlins of north-east Ireland "belong to the last main glaciation when the Scottish ice and Irish ice were confluent over the Loch Neagh basin. Their lack of parallelism with the successive ice-fronts established by other means and the dependence of their alignment upon major physical features seem to prove this age and relationship". The investigations described in this paper represent a further development of those of Dwerryhouse.

Observations on Crystalline Silica in Certain Devitrified Glasses.—Tool and Insley (*J. Research, National Bureau of Standards*, 1938, 21, 743) present the results of a series of tests

made with a view to observe in devitrifying glass the transformations: noncrystalline silica-cristobalite-trydimite-quartz, in the temperature range 625° to 950° C. A study of the devitrification products was made by obtaining the heating and cooling curves during the process and also by microscopic and X-ray observations.

Data are given for (a) inversion points of cristobalite on heating and on cooling; (b) the upper and lower inversion points of trydimite on heating and on cooling; and (c) inversion point of quartz.

The authors discuss the significance from several points of view the observed features of the inversion effects in the upper trydimite range.

K. R. K.

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Concrete as X-Ray Protective Material.—

With a view to avoid the high cost and the problem of supporting the large mass of lead required for X-ray protection at potentials above 200 kv., George Singer, Lauriston S. Taylor and Arvid L. Charlton (*J. Research, National Bureau of Standards*, 1938, 21, 783) have investigated the lead equivalents of various types of concrete in the range 200–400 kv. The protection coefficient of concrete was found to increase rapidly with increasing excitation potential, e.g., a barrier of about 30 cm. was adequate at 400 kv. while at 200 kv. the thickness required was 22 cm.

K. R. K.

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Physiological Palmistry.—Many believed and still believe that the dispositions and even the fates of persons can be read by a study of the individually different formations of the lines of the hand. The prosaic physiologist like Prof. Dr. Armin Tschermak-Seysenagg of the German University at Prague, sees in it (*Forsch. u. Fortsch.*, 1939, 15, 214) only a tube-like structure of our skins, which resembles the plate-like structure of the epidermal armour of certain animals. The skin folds itself according to and corresponding to these lines, during certain movements and positions. The most important hand lines are as follows: first the thumb bending line, secondly the opposition line (the life line of the Chiromancers)—corresponding to the placing of the thumb exactly opposite to the other four fingers held in the stretched out position, thirdly a pincer or principal folding line of the palm corresponding to the folding through complete pincer closure between the thumb and the four finger group, fourthly a pointer line corresponding to the small pincer closure between the thumb and three fingers towards the ulna, the pointer finger being kept stretched, fifthly an approachment line (the fate line of the Chiromancers) of the two pairs of the four finger group under stretching of the middle finger, sixthly a folding line of the fourth and little fingers—used when the fourth and fifth fingers are bent keeping the second and third fingers stretched, which is the usual position when administering an oath or a blessing. A double furrow permits the bending of the palm towards the lower arm, corresponding to the first and the second steps

in the folding of the hand. This kind of formation of the skin exists already in the case of newly born children. Just the same way as the furrows on a finger can be recorded as in Dactylscopy so also can these lines be recorded like a document by smearing the palm with soot, printer's ink, and oil colours and then pressing on a paper. In this way was proved a remarkable identity in the formations of the lines of the hand in the case of a pair of single cell twins. Much more interesting and instructive are the so-called Rontgenchirogrammes which are obtained by rubbing on to the palm Bismuth pulp, or Bismuth ointment, and then wiping it off and afterwards obtaining a Rontgen photograph. Thereby it appears that the relationship of the position of the lines of the hand to that of the bones and joints of the hand, can be determined. It is to be expected that out of this will arise a perfecting of the system of registering and identification of individual persons, which is so important from the criminological point of view.

N. G. C.

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Hand-made Paper.—The Industrial Section of the Indian Museum (Botanical Survey of India) has collected valuable information from various parts of India on the methods of manufacturing hand-made paper. A sample of paper obtained from Nepal, which is said to last for 1,000 years or more, has been exhibited at the Indian Museum, Calcutta, where charts have been put up showing in a simple manner the processes through which hand-made paper has to pass before it emerges out as finished product.

The fibre of *Sunn Hemp* (*Crotalaria juncea*) is the principal raw material for making paper in Manipur State. In the Shan States, the bark of *Thale* (*Broussonetia papyrifera*) is employed. Rags, old clothes, cotton waste, etc., are generally employed for making good paper in various parts of India.

Other raw materials used for paper-making are, straw, bamboo, the bark of *Aquilaria agallocha* and jute. The Industrial Research Laboratory of the Industries Department, Government of Bengal, has been investigating the possibilities of using dried water-hyacinth stems and stems of jute plant stripped of the fibre, for making paper. The Benares Hindu University has taken up the production of hand-made paper from easily available raw materials. Experiments have also been undertaken at the Forest Research Institute, Dehra Dun, to improve indigenous methods with a view to developing hand paper-making into a cottage industry.

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Vegetable Rennet.—An extract from the berry of *Withania coagulans* obtained from the N.W. Frontier Provinces, can be employed as a substitute for rennet in cheese making. It is understood that cheddar cheese and soft cheese of good quality have been prepared at the Imperial Dairy Institute, Bangalore, by employing vegetable rennet.

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Iron and Coal Deposits.—New deposits of coal, iron and gold have been discovered in India according to the *General Report* of the Geological Survey of India for 1938.

In one workable seam alone in the Langrin area in Assam a total reserve of 80,000,000 tons of coal is indicated and there are 610,000,000 tons of first class iron ores in Bastar State, Eastern States Agency.

The coal area in Assam lies in the south-western corner of the Khasi Hills between the Um Mawblei and the border of the Garo Hills, into which also the coal-bearing strata extend. It is divided structurally into two unequal parts by a strong cross fault.

By far the most important areas for development are those of the Langrin plateau east of the fault. Coal seams outcrop in almost every deep ravine that discharges into the Sylhet plains between Bagali Bazar and the limestone outcrops beyond Barsaura. Most of these seams lie in deep gorges on the plateau and contain pebbles of coal from seams exposed in the cliffs on each side.

The mapping of the iron-ore deposits of the Bailadila range, Bastar State, has been completed. Ore deposits, large and rich enough to be worked economically, occur in numerous places along the two high ridges which flank the range and on the watershed of the Malengar at the southern end of the range. The largest deposits are two on the watershed of the Malengar and one about two and a half miles north of Loa. In these three deposits there are at least 400 million tons of ore.

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Indian Short-wave Stations.—The data collected by the Research Department of the All-India Radio during the past 18 months have yielded valuable information on the relative advantages of the short- over medium-waves and the choice of the day (31 metre) and night (60 metre) wave bands under the Indian conditions.

In the tropics, atmospherics also called static, mar reception during the monsoon weather. Measurements indicate that their magnitude is about fifty times greater in India than either in Europe or America; it is about fifty times stronger on medium- than on short-waves.

The 31-metre band is interference-free during the day. The chief considerations in the choice of the 60-metre band are: (1) freedom from interference due to other stations (unlike the overcrowded 49-metre band with 197 stations!); (2) good reception primarily in India; and (3) minimising the 'skip distance' trouble.

With these bands, therefore, Indian listeners can expect reasonably good reception in all seasons. It may be mentioned that the All-India Radio received proofs of satisfactory reception of Indian stations even from Europe and America.

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Mineral Springs in India.—Occurrence of two sulphurous springs in Riasi District, Kashmir, is reported by the Geological Survey of India. The one, which is situated about a quarter of a mile above Khar along the Tawi River, discharges hot water only during winter. It precipitates a good deal of milk of sulphur. The other is the well-known thermal spring at Tattapani. Its water is apparently possessed of certain therapeutic properties for curing skin diseases and gouty affections. The water gives

a strong sulphurous odour and maintains a constant high temperature of 70°–80° C.

Several years ago the Geological Survey of India compiled a catalogue of the hot springs in this country, but this information is in need of additions both with regard to the radio-active and mineral character of the waters from a geological aspect and the medicinal properties of the water from a medical point of view.

It is understood that an exhaustive examination of the mineral springs of India is under consideration and it is hoped that the Geological Survey of India will shortly undertake the work. The determination of the physical and chemical constitution of the mineral waters must be supplemented by an investigation of the cures which are said to have been effected by the various waters and for this purpose medical collaboration appears essential.

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Laminated Wood.—It is curious that while much attention has been paid in this country to the possibility of Plywood manufacture, laminated wood construction (more commonly called "Laminboards") is still in the nature of novelty. Laminboard technique has made great advances in Europe and America and large panels right up to 30 to 40 mm. thick are available at competitive prices. The many advantages which such construction offers are of even more value in a country like India with its extreme climatic conditions.

In a recent pamphlet by Mr. W. Nagle, Officer-in-charge, Wood Working Section, Forest Research Institute, Dehra Dun, the basic information about laminated wood is presented in seven compact and readable sections entitled Introduction, The History of Laminboards, Methods of Manufacture of Laminboards, Uses of Laminboards, Cost of Laminboard Making Plant, Details of a small Laminboard Plant and Some Machine Makers. The information provided in these paragraphs is just enough and of the kind to enable the serious student or manufacturer to ask further questions regarding details. Such enquiries, Captain H. Trotter, Utilisation Officer, Forest Research Institute, Dehra Dun, assures the reader in a "Foreword", will be gladly answered.

The publication is illustrated by a number of photographs. The frontispiece illustrating the Board Room at the Forest Research Institute, Dehra Dun, does scant justice to the beauty of the original. It is true that no "black and white" picture can adequately bring out the quiet charm of wood panels but the reviewer cannot help feeling that a little more expense for better "get-up" of the illustrations would be justifiable in such avowedly propagandist publications.

EMMENNAR.

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India Meteorological Department.—The Administration Report (1937–38) of the Meteorological Department of the Government of India, that has been recently published, gives a brief account of the routine work of the Department as well as of the developments—some of them of far-reaching importance—that have been carried out during the year. The Report contains matter of considerable public interest, and will enable the reader to form an estimate

of the services rendered by the Department in the various activities concerning the affairs of the country. The first section of the report opens with a tribute to the memory of Mr. J. H. Field, a former Director-General of Observatories, who, it will be remembered, was responsible for a large amount of pioneer work in connection with the organisation required for the study of upper air in India. In the same section are summarised the outstanding features in the developments effected during the year. Mention is made of the preparation of the additional afternoon weather chart daily from 1st April 1937. Two forecasts are thus issued every day from Poona and a synoptic chart from the afternoon observations is also printed in the Daily Weather Report. Commencing from 1st August 1937, broadcasts of regional weather data have been made twice daily from the short-wave aeronautical wireless stations at Karachi and Calcutta. A short-wave station is under construction at Poona by the Posts and Telegraphs Department which, when completed, will enable the Headquarters Office to issue collective and regional synoptic data. Several improvements have been brought into effect, in the meteorological service to aviation interests, since the introduction of the Empire Air Mail scheme and the development of internal air transport.

In Section II of the Report are given in some detail the services of the Department in connection with storm warnings to shipping in the Indian waters; and in Section III, we have an account of the arrangements made for supplying weather information and forecasts to aviators on the various air routes in the country. Section V contains a brief description of the normal duties of the different sections of the Headquarters Office as well as of the meteorological offices and observatories maintained by the Department. A concise account is given of the special researches carried on at these centres and is sure to be of interest not only to meteorologists but also to workers in allied branches of science. Of particular importance to an agricultural country like India are the investigations made in the Agricultural Meteorology Section at Poona where studies have been continued on a number of problems connected with climate and crops.

The study of the earthquakes that recently occurred in India and its neighbourhood, and the determination of focal depths in some cases, have received attention at the Colaba Observatory, which acts as a central station for collecting and editing the data obtained from the records of all the seismographs operating in India and Ceylon. A quarterly Bulletin containing the readings of the principal phases of seismograms is being published from the beginning of 1938.

Much of the routine work of the Kodaikanal Observatory is planned in co-operation with the International Astronomical Union. Among the chief features of the year, mention is made of the discussion of the observations secured at the Observatory Eclipse Expedition to Japan in 1936, the publication of a note on the presence of oxygen in solar prominences and the construction of a 13 ft. spectrograph of the Littrow

type for the systematic study of the contours of selected lines in different parts of the sun's disc and in sunspots.

A list of publications issued during the year is contained in Appendix B, which gives an idea of the extent of the research activities of the Department. T. P. B.

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The Report for 1938 of the Solar Physics Observatory, Kodaikanal, which specialises in the study of the Sun and makes daily visual and photographic observations of its changing features has just been issued.

There was a slight decrease in almost all forms of solar activity during the year except in prominence areas which showed an increase over the previous year's. Not on one day was the Sun's disc free from spots. The mean daily number of sunspots fell by 16 per cent. and the number of new groups by 13 per cent. An increase of 12 per cent. was observed in the mean daily areas of calcium prominences, but the mean daily numbers of prominences decreased by 6 per cent.

Photographs of the Sun on a scale of eight inches to the Sun's diameter were taken on 328 days using a six-inch achromatic object glass and a green colour filter. A statistical study of prominence areas was made to determine the possible influence of the earth on solar prominences. Photometric work on the intensities and contours of selected Fraunhofer lines made further progress.

A line-shifter was designed and mounted on the H_{α} spectroheliograph and a twelve-inch siderostat was built up and mounted. The spectrum of Bromine was photographed and precise measures of intensity were made by photographic photometry for a few lines.

Data of cosmic radiation obtained from measurements at Agra and Kodaikanal were analysed and its diurnal variation with mean and sidereal times worked out.

Weather conditions were slightly less favourable for solar observation. The Observatory carried out the programme of the International Astronomical Union.

The Milne-Shaw Seismograph recorded 255 earthquakes during the year.

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Report on Child Welfare.—The League of Nations has just published the *Annual Report on Child Welfare* prepared by the Child Welfare Information Centre, containing a survey of the principal legislative and administrative measures adopted or examined in 1937 in some thirty countries, with a view to improving and extending the protection afforded to the child, its mother and the family (*Document Ser. L.o.N.P.*, 1939, 4, 5, pp. 201. Price 4sh.).

A Press Communique issued by the Information Section of the League, draws attention to the important features of the report, which gives *inter alia* a general account of the measures adopted in China and a summary account of the work being done in the province of Kwang-si, the most advanced province as regards the organisation of social services. Some short historical notes are included in the report, which show the importance of the social evolution at present transforming China.

The information on the United States and the United Kingdom is very complete, and shows the importance attached by these great countries to the improvement of the health of the mother and child and to physical education.

The report contains a concise summary of measures concerning the child contained in the Swiss Penal Code of December 31st, 1937, as well as interesting information on Turkish child welfare legislation and its application.

The report should prove useful to all who are interested in the organisation and social development of the various countries or who are investigating the methods adopted to protect the mother and child with a view to determining a country's level of civilisation.

Atmospheric Pollution.—The purity of the atmosphere is a matter of concern to everyone, especially those living in industrial districts and crowded city areas. The available facts on the extent, character and variation of atmospheric pollution are contained in the Annual Reports on observations made by local authorities and other bodies co-operating with the Department of Scientific and Industrial Research in the study of the subject. The 24th Report, just issued (H.M. Stationery Office; Price 2sh. net.; General Deposit Tables 4sh. 6d. net.), records and discusses the results obtained in the year ending 31st March 1938. A special illustrated section of the Report is devoted to a brief explanation, in simple language, of the part played by atmospheric pollution and other factors, in causing fogs.

The results of measurements made with the deposit gauge are, as usual, analysed and discussed in the Report, but the detailed figures of deposited impurity, contained in the General Deposit Tables, which were formerly embodied in the Report, are now issued as a separate publication.

The Seventieth Annual Report of the American Museum of Natural History, recently received, records a general expansion in the activities of the museum; this is remarkable considering the fact that the management was faced with a fall in the income and many departments were understaffed. New exhibits were added and the scientific and educational work of the Museum were extended. At the request of the authorities of the New York World Fair, the Museum has planned a temporary exhibition of primitive art, utilising original pieces from the extensive collection from the Americas, Africa and Polynesia. In the Hayden Planetarium, two spectacles designed for the layman's appreciation of astronomy are planned. One reveals the circumstances by means of which, life on earth or the earth itself might come to an end; the other carries the visitor on a trip to the moon and gives him a realistic picture of the surface of our nearest cosmic neighbour.

The research activities of the Museum cover a very wide field, and the results of the investigations have been recorded in several reports, monographs and journals; mention may be made of the work on the social behaviour of the vertebrates, evolution of the brain in fossil and

recent vertebrates, dentition and jaws of the fossil South African man-apes. The Asiatic Exploration and research was continued and the results obtained by Dr. Glover M. Allen, on the mammals of China and Mongolia were published as Part 1 of Volume 9 of the series in the *Natural History of Central Asia*. Several expeditions were undertaken in North America, Central America, South America, Asia, Africa, South Seas and Pacific Islands, for acquiring specimens and for study. A study of the report cannot fail to impress the reader with the enormous influence which the Museum exercises in popularising scientific knowledge.

Spectrochimica Acta.—We have received the first number of the new journal, published by the well-known firm of Julius Springer, with the co-operation of an International Board of Chemists. Chemical analysis, both qualitative and quantitative, by the methods of emission spectra are being increasingly adopted by many firms and institutions. Improved technics in exciting the spectral lines, and their estimations both by visual and photographic methods, have brought out the general advantages of rapidity and convenience in these methods. In special cases as in 'trace' analysis, or in the estimation of rare-earth impurities, spectro-chemical methods possess distinct advantages. Their applicability to wider regions as in the identification of different alloys, precipitates, concentrates, frits, enamels, etc., has called forth special researches, and a forum for the publication of these researches is now provided by the new journal. The Board of Editors are R. Brackpot (Louvain), A. Gatterer (Castel Gandolfo), W. Gerlach (München), G. Scheibe (München) and F. Twyman (London). The journal will be published at varying intervals. The first number (24 May 1939; Price 8.60 RM.) starts off with a contribution from Prof. H. Kayser on "Beobachtungen über Abfunkvorgänge bei der Spektralanalyse von Aluminiumlegierungen". There are four other articles on "The Quantitative Spectrographic Analysis of Solder, Spelter Magnesium and Aluminium Alloys" (McClelland and Whalley), "Die quantitative Bestimmung kleinster Mengen von Europium in Samarium" (Gatterer and Junkes), "Über eine neue Anwendung der Emissions-spektroskopie zur lokalen Mikro-Analyse" (Scheibe and Martin), and "Die physikalischen Erscheinungen der Bogenentladung in ihrer Bedeutung für die spektralanalytischen Untersuchungsmethoden" (Rollwagen). Finally there is a section, which will be a feature in all the numbers, on book reviews and abstracts of articles pertaining to the subject proper of the journal.

Humidification of Freezers.—The primary cause of deterioration in frozen products under the conditions prevailing in the freezers, now in vogue, is surface drying or as it is more generally known, freezer burn. This condition can be reduced or prevented by packing the product in a more or less moisture-proof manner. The refrigeration engineer has contributed very little to minimise this form of

deterioration beyond the possible use of very low storage temperatures.

Freezer burns can also be prevented by humidifying the atmosphere of the freezer. The practicability of the method was suggested by Dr. W. H. Cook of the National Research Council, Ottawa, in a paper presented at the Food Technology Conference recently held at the Massachusetts Institute of Technology. The conditions necessary for ensuring continuous evaporation from the product have been worked out and a humidifying apparatus has been designed which will serve to maintain humidities of 95% with a heat input equivalent to a 10-15% increase in the refrigerating load.

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A delegation of agricultural experts with Mr. A. Mustafa, Agricultural Officer, Baluchistan, as leader and Dr. B. B. Mundkur, Assistant Mycologist, and Dr. Taskir Ahmad, Assistant Entomologist, of the Imperial Institute of Agricultural Research, New Delhi, as members, has left for Afghanistan, at the invitation of the Afghan Government with a view (1) to give suitable assistance and advice as is possible, to the Afghan Government in regard to crop production; and (2) to collect such information regarding Afghan agriculture as may be of interest and value to India. The delegation will devote particular attention to the fruit cultivation with special reference to the prevalent pests. A sprayer and necessary materials for spraying have been taken in order to demonstrate the methods of dealing with insect pests. Necessary equipment for collecting insect fungus and plant specimens has also been provided. Fruit cultivation, the most important item in Afghanistan Agriculture, is extensively carried out in the irrigated valleys lying to the south of the country. The delegation will also interest itself in problems connected with locusts and locust attacks. The locust affected area lies in the north-east and north of Afghanistan, especially in the plain of Oxus. It is expected that the delegation will complete its labours in about a month.

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Prof. F. C. Minett, D.Sc., M.R.C.V.S., Director of Research, Institute of Pathology, Royal Veterinary College, London, has been appointed Director, Imperial Veterinary Research Institute, Government of India. He is expected to take charge of his duties early in September.

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University of Mysore.—1. The triennial elections to the Senate by and from the Academic Council and the Registered Graduates were held.

2. Refresher Courses for the High School teachers deputed by the Department of Public Instruction were held in the Maharaja's College, Mysore, in Arts subjects and the Central College, Bangalore, in Science subjects.

3. Arrangements were made for publishing the following Extension Hand-books in Kan-
nada: (1) Our Villages. (2) Astronomy. (3) Diseases of Society. (4) Taxes. (5) Nine Gems.

4. The results of the University Examinations held in March 1939 were announced. They were as under;—

Sl. No.	Examination	Examined	Passed
1	Intermediate	1,294	554
2	B.A. (New)	158	55
3	B.A. (Old)	3	2
4	B.Sc.	193	116
5	B.A. (Hons.) Preliminary	41	31
6	B.Sc. (Hons.) Preliminary	32	27
7	B.A. (Hons.) Final	44	40
8	B.Sc. (Hons.) Final	47	45
9	M.A. (Qualifying Test)	4	4
10	M.Sc. (Qualifying Test)	1	1
11	B.T.	54	37
12	First Examination in Engineering	73	58
13	Second Examination in Engineering	73	41
14	B.E.	47	34
15	Pre Medical	29	10
16	First M.B.B.S.	25	13
17	Second M.B.B.S.	29	19
18	Final M.B.B.S.—Part I	21	14
	Part II	28	14

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19	First L.M.P.	17	9
20	Second L.M.P.	25	17
21	Third L.M.P.	45	22
22	Final L.M.P.	46	26

March 1939

23	First L.M.P.	49	32
24	Second L.M.P.	34	17
25	Third L.M.P.	46	23
26	Final L.M.P.	44	23

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Royal Institute of Science.—The recent University results have been satisfactory. Out of the 80 candidates who appeared for the B.Sc. Principal subjects, 72 have passed giving a total percentage of 90.

Dr. R. C. Shah has been promoted to B.E.S. Class I, as Professor of Organic Chemistry.

Dr. Y. G. Naik, Ph.D. (Bom.), of the Physics Department, has been promoted to the post of Lecturer in Physics at the Gujerat College, Armedabad.

Dr. (Miss) M. M. Paranjpe, Ph.D. (Lond.), has been appointed as Assistant Lecturer in the Physics Department in place of Dr. Y. G. Naik.

Mr. D. R. Nadkarni, M.Sc., has joined the Chemistry Department as Assistant Lecturer.

The teaching of Mathematics will now be carried out jointly with the Mathematics staff of the Elphinstone College.

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Announcements

A New International Address Book of Plant Taxonomists, Geographers and Ecologists is being prepared by the Editor of *Chronica Botanica* and will be issued in the near future in the "New Series of Plant Science Books". The Address Book will not only give the names and addresses of the scientists included, but also

their scientific interests, together with a conspectus of current and planned research. This is the same kind of information as was being included in *Chronica Botanica*, when it was issued as a year-book (Vols. I-III, 1935-37). Information on new research projects, especially in taxonomy, geography and ecology, in *Chronica Botanica*, the International Plant Science News Magazine, will henceforward be restricted to major co-operative projects and the like. As it is no longer practicable, or impossible, to compile an address book for the whole of plant science, it is hoped that similar address books will be prepared for other branches of plant sciences, e.g., general botany (morphology, physiology, genetics), plant pathology, agronomy, horticulture and forestry.

Dr. Verdoorn, Editor, *Chronica Botanica*, (P.O. Box 8, Leiden, Holland) will be glad to send relevant questionnaire cards to those interested, on request.

A New International Hormone Standard.—It is announced that the standard for the gonadotrophic hormone derived from the human urine of pregnancy, which was adopted last year by the League of Nations at its conference for the standardisation of hormones, is now ready for distribution.

It consists of a mixture of six samples of hormone, which have been given by various manufacturers, and is presented in the form of tablets containing each about 100 international units of activity.

The National Institute for Medical Research at Hampstead has already sent supplies of this new standard to the national centres which have been set up in numerous countries for distribution to the scientific and commercial laboratories.

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We acknowledge with thanks, receipt of the following:—

"Journal of Agricultural Research," Vol. 58, Nos. 8 and 9 and Index to Vol. 57.

"Agriculture and Live-Stock in India," Vol. 9, Pt. 3.

"Agricultural Gazette of New South Wales," Vol. 50, No. 6.

"Journal of the Royal Society of Arts," Vol. 87, Pts. 4509-17.

"The Philippine Agriculturist," Vol. 28, No. 1.

"Monthly Bulletin of Agricultural Science and Practice," Vol. 30, No. 5.

"L'Agricoltura Coloniale," Vol. 33, No. 5.

"Biochemical Journal," Vol. 33, No. 5.

"Berichte der Deutschen Chemischen Gesellschaft," Vol. 72, No. 6.

"Journal of the Institute of Brewing," Vol. 45, No. 6.

"The Journal of Chemical Physics," Vol. 7, No. 6.

"Journal of the Indian Chemical Society," Vol. 16, Nos. 4 and 5.

"Chemical Age," Vol. 40, Nos. 1039-42.

"Journal de Chimie Physique," Vol. 36, No. 3.

"Chemical Products," Vol. 2, No. 2.

"Experiment Station Record," Vol. 80, No. 5.

"Indian Forester," Vol. 55, No. 7.

"Indian Forest Records," Vol. 3, No. 6.

"Forschungen und Fortschritte," Vol. 15, Nos. 16-18.

"Transactions of the Faraday Society," Vol. 35, No. 218.

"Review of Applied Mycology," Vol. 18, Nos. 4 and 5.

"The Bulletin of the American Meteorological Society," Vol. 20, No. 4.

"Nature," Vol. 143, Nos. 3625-33.

"American Museum of Natural History," Vol. 43, No. 5 and Vol. 44, No. 1.

"Journal of Nutrition," Vol. 17, Nos. 5 and 17.

"Journal of the Bombay Natural History," Vol. 40, Nos. 3 and 4.

"Indian Journal of Physics," Vol. 13, Pts. 1 and 2.

"Canadian Journal of Research," Vol. 17, Nos. 3 and 4.

"Research and Progress," Vol. 5, No. 4.

"Sky," Vol. 3, Nos. 5, 7 and 8.

"Science Forum," Vol. 4, No. 1.

"Science Reports of the Tohoku Imperial University, Japan," Vol. 13, Nos. 1-4.

"Indian Trade Journal," Vol. 132, Nos. 1715-16; and Vol. 133, Nos. 1717-24.

"Indian Central Jute Committee Bulletin," Vol. 2, No. 3.

"Comptes Rendus (Docklady)," Vol. 22, Nos. 5 and 6.

"Transactions of the Mining, Geological and Metallurgical Institute of India," Vol. 35, Pt. 1.

"Calcutta Medical Journal," Vol. 35, No. 6.

"Indian Medical Gazette," Vol. 74, No. 5.

"Occasional Notes (Royal Astronomical Society)," No. 4.

"Proceedings of Royal Netherlands Academy, Amsterdam," Vol. 42, No. 2.

"The Lingnan Science Journal," Vol. 18, No. 2.

"Science Progress," Vol. 33, No. 132.

"Indian Journal of Veterinary Science and Animal Husbandry," Vol. 9, No. 1.

"Proceedings of the Royal Society of Edinburgh," Vol. 58, Pt. 3, and Vol. 59, Pt. 1.

"Proceedings of the Royal Irish Academy, Dublin," Vol. 45, Pts. 7-12 (Section B).

Catalogues:

"Books on Insects and Spiders"; "Monthly List of Books on Natural History and Science—May 1939" (Wheldon & Wesley, Ltd., London).