

## SCIENCE NOTES.

**A Flying Machine in the 9th Century A.D.**—At the Ordinary Monthly Meeting of the *Royal Asiatic Society of Bengal*, held at Calcutta on May 2nd, 1938, Mr. M. Hidayet Hosain communicated a paper on the above subject. According to the author "Abdul Qāsīm Abbās bin Firnās who died A.D. 888, had invented a flying machine, a description of which is given by Al-Maqqarī, died A.D. 1632, a reliable historian. Abbās bin Firnās attached a couple of wings to his body and getting on an eminence flew to a considerable distance but while alighting again on the place whence he had started he was hurt. The first attempt was not crowned with success but it appears from the account of Mumin bin Said, a contemporary poet, that the scientist was successful as an aviator and flew to great distances at a considerable speed. Among his other inventions worth mention are glass, and an instrument called *Minqālah* similar to the *metronome*, by which time was marked in music without having recourse to notes and figures."

At the same meeting, Mr. M. B. Emeneau read a paper on the "Kinship and Marriage among the Coorgs".

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**The Anniversary of Sir Ronald Ross.**—The Anniversary of the Birth of Sir Ronald Ross, a man to whom all the world should bow with the deepest respect, came off on May 13th. In the eyes of science and humanity, he was a very great investigator. His discoveries were carried out very quietly in a hospital laboratory. Very few people are aware of all that this silent Englishman discovered about malaria, mosquitoes and quinine, although these discoveries transformed half the world. One would think a mosquito's stomach is too small a place in which to find out many things, yet Ronald Ross found out quite a number of most important things.

A mosquito that has stung a malarial subject, introduces a tiny drop of infected blood into its stomach. During the digestion of this blood, the malaria germs preserved by the stomach increase, and then directly contaminate the person who is stung later on. In other words, the mosquito's stomach is a small malaria factory and an efficient diffuser of this terrible malady.

Sir Ronald Ross was fully alive to the fact that mosquito bites are very frequent and create great dangers of contamination. Ronald Ross's discovery—even if this scientist had done nothing more—was important enough. But he went considerably further. He wrote his book on: "The Prevention of Malaria", in which he stated that the disappearance of all mosquitoes would mean the end of malaria.

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**Important Breeds of Cattle in India.**—A valuable bulletin dealing with the basic origin of cattle in India and the main characteristics of some of the well-known breeds has recently appeared (*A Brief Survey of Some of the Important Breeds of Cattle in India* by Col. Sir A. Olver; Manager of Publications, New Delhi, 1938, pp. 45, price Rs. 2 or 3sh. 6d.). Its publication synchronised with the holding of the First All-India Cattle Show at Delhi where

laymen and experts had an unique opportunity of studying the various important types of cattle collected from all parts of the country. The author, in attempting to describe the basic types, has traced their present existence in different parts of India to the successive migrations of peoples into India. A chart reproduced from the *Report of the Census of India, 1931*, gives the routes taken by the invaders. It shows that the present distribution of what is commonly known as the Grey white cattle corresponds with the areas reached by the Rig Vedic Aryans. The book is in the main composed of information collected by the author in the course of his tours and is illustrated with a large number of excellent photographs, picturing the several breeds with description of their main characteristics. India rightly boasts of some of the finest specimens of cattle in the world and from generation to generation these fine breeds have been maintained by professional cattle breeders, almost seminomadic, all of whom depended upon good pastures for feeding their animals. With the increase in population and the gradual disappearance of pasture lands, the professional breeders are dying out. Consequently, there has been a perceptible rapid deterioration of some of the important breeds for want of definite policy of breeding under modern conditions. The author has taken much pains to study the subject in its various aspects and hailing from a family of live-stock breeders and a veterinarian, has some useful suggestions to make. He has also been consistent with what he said seven years ago on the unchanging breeding policy in India, wherein he had specially emphasised the importance of pedigree herd books. He lays special emphasis on the unscientific feeding and management, as the main cause of deterioration and degeneration and suggests that a mixed committee of officials and non-officials under the control of an expert department is a practical solution towards standardising breed characters and improvement of pedigree cattle.

Although some of the provinces and Indian States have published brochures on their local breeds, this *Bulletin* is the first of its kind dealing with all the important breeds of cattle of India as a whole and it is hoped that it will be suitably enlarged in future years, as a guide to all Animal Husbandry Organisations in India, to assist them to expand and develop the work on improvement of cattle on an All-India basis.

S. D. A.

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**Educational Progress in India.**—"The increasing amount of attention given to education by provinces, educational bodies and individuals is the most prominent feature of the year under review."

This is what the Educational Commissioner with the Government of India says in his latest *Annual Report on Education in India* in the year 1935-36.

The prevailing discontent against the present system of education is finding wide expression and all are agreed, the Educational Commissioner observes, that stagnation and wastage is appalling, that the administration of primary education by

local bodies shows no improvement and is thoroughly inefficient, that compulsory primary education appears as remote as ever, that the annual increase in the percentage of literates is disconcertingly small, that the universities contain many students who are unfit to profit by higher academic studies, that unemployment amongst the educated classes is common and that provision for the education of girls is ludicrously inadequate.

Again and again, attention has been drawn to these facts in the press, on the platform and in provincial and other reports. What is now necessary is a determined effort to do something about it and not merely to talk.

The plea of lack of money can no longer excuse apathy for the money now available for primary education could support a wide expansion, were administration more austere and wastage eradicated. But there is no need to be pessimistic in view of the attention which these problems are now receiving and the advent of provincial autonomy.

The hope is expressed that in any educational reorganisation the Central Advisory Board of Education will prove invaluable both in advice and stimulus. In fact, the Board has already outlined a scheme of educational reorganisation with a view to lessening the drift of unsuitable students to universities and providing better employable material. What is now required is to implement the suggestion of the Board which has met with general acceptance.

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**Development of Broadcasting in India.**—Having opened four new Wireless Stations—Lucknow, Delhi, Lahore and Bombay—within fourteen weeks, something of a record in broadcasting development—All-India Radio are now making preparations for the opening of a second short-wave-transmitter at Delhi.

This second short-wave transmitter is part of a comparatively recent development of great importance to tropical and sub-tropical countries like India in combating atmospherics and providing an economic service.

The use by All-India Radio of wave-lengths near 60 and 90 meters for broadcasting is a comparatively recent development, which is of great importance to countries in tropical and sub-tropical zones where atmospheric disturbances are troublesome, where large areas have to be covered, and where financial considerations make it impossible to cover a country by means of high power medium-wave stations.

The necessity of development along these lines was recognised by a committee in England which has recently issued a report on the development of broadcasting services in the Empire. In this report it is stated that the only solution to Empire broadcasting is probably to be found in the use of wave-lengths in the intermediate bank of 80–200 metres.

The requirements of Indian broadcasting and broadcasting in the Colonies, as well as in other tropical countries, led to proposals being made at the International Tele-Communications Conference which has just ended at Cairo, for new wave-lengths to be reserved for broadcasting between 50 and 200 metres. The Cairo Conference has now agreed to the reservation of wave-lengths in the vicinity of 60, 90 and 150

metres for use in tropical and semi-tropical countries.

The wave-lengths used by the new Indian 10 K.V. stations are those which have now been accepted at Cairo, and India has obtained the advantage of reserving and using a number of frequencies in these bands before other countries have made prior claims.

The 60, 90 and 150 metre wave-bands referred to above are specially of service after sunset. For transmission during the day, wave-lengths of 31 and 49 metres are necessary. During the day these wave-lengths are not usable for very long distance transmission and so no interference to other services is given by the Indian Stations using these wave-lengths in the daytime.

It will thus be appreciated that the four Indian 10 K.V. short-wave stations at Delhi, Bombay, Madras and Calcutta are intended to serve special areas, and for this purpose the new wave-lengths recently agreed to at Cairo are to be used for service at night time and shorter wave-lengths during the day.

These stations should be satisfactorily received upto a distance of about five hundred miles, and under favourable conditions at farther distances.

It will also be appreciated that, although better service could be obtained at greater distances by using shorter wave-lengths, a very serious deterioration of the service would occur in the areas which the stations are primarily intended to serve and that, therefore, such wave-lengths cannot be used.

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**Meteorological Department of the Government of India.**—The *Annual Report* for 1936–37 that has been recently issued, describes the various activities of the Department and summarises the substantial improvements that have been effected during the year. The chief features of development are briefly recounted in a preliminary chapter, while detailed references to these are given in the later chapters of the report :

As a result of the growing demand of air traffic considerable attention has naturally been given to the provision of better facilities for reporting weather information along the principal air routes. Some experimental work appears to have been carried out for extending these facilities when night flying is to be introduced. Arrangements have been made for issuing a second weather chart from Poona so that evening forecasts may be regularly available. There is also a proposal to provide a short-wave wireless station at the Headquarters Office at Poona, which will be useful as a means of providing quick intercommunication between the forecasting centres and for the exchange of weather data with the meteorological services of the neighbouring countries. A closer co-operation with these organizations is foreshadowed so that weather maps for the whole of Southern Asia can be prepared, which will surely be of great help to meteorologists in studying changes of weather phenomena in this part of the earth.

Special reports and forecasts were supplied to the Mount Everest Expedition of 1936 and to the base camp of the French Karakorum Expedition.

Besides the usual routine activities which have been maintained, mention is made of a number of special investigations that have been carried

on with success. Sounding balloons were released from Agra, Poona and Madras, for obtaining information about the conditions of upper air. Measurements of cosmic ray intensity with a Kolhorster cosmic ray apparatus were commenced at Agra, and also measurements of the horizontal transmission co-efficient of the atmosphere with a Holophane Lumeter.

At the Bombay Observatory, where the geophysical work of the Department is centred, a study is being made of the day-to-day variability of the horizontal force of the earth's magnetic field, as well as of the earth-air currents from elevated points during times of thundery weather.

In the field of agricultural meteorology, a considerable number of researches have been carried out, in connection with local climates and growth rates of crops, the control of soil temperature, etc. Statistical investigations on the frequency of hail storms, heat and cold waves and of floods and droughts in India have also received attention. It is gratifying to note that this section is shortly to be placed on a permanent basis.

The activities of the Kodaikanal Observatory are mainly astronomical and much work is being done there on the study of solar phenomena in co-operation with the International Astronomical Union. Among special studies made during the year may be mentioned, an investigation of oxygen in prominences and a photometric study of the calcium and hydrogen lines at different points of the sun's disc. Dr. T. Royds proceeded on deputation to Japan for observing the total solar eclipse of 1936 June 19. The weather does not appear to have been very favourable; however, Dr. Royds was successful in carrying out the principal part of his programme and has secured some important photographs during the partial phase of the eclipse right up to the moment of totality.

The *Report* contains a good deal of matter that will be read with interest by persons engaged in scientific work, as well as by the general public.

T. P. B.

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**The Scope for Metallurgical Research in India.**—In an article appearing in the *Transactions of the Mining, Geological and Metallurgical Institute of India* (1938, 33, Part IV, 363) Mac Gregor sets forth a case for establishing research centres in India for investigating the properties of steel, since steel industry in India promises to have a great future in the country. He argues that a systematic scientific inquiry has, even in the West, replaced the "trial-and-error" method ever since Professor Arnold's time. The Sheffield School inaugurated by him has spread its influence all over the Empire, and it is significant that the British technicians in India, working in the steel trade, belong to that School. Granted the need for research, he asks what is the nature of research to be conducted? Research in steel manufacture may be of three kinds:—firstly, scientific investigation into the chemical, thermo-chemical or atomic-physical aspects of metallurgy; secondly, the perfecting of the existing or inventing new processes of manufacture; and thirdly, investigating the properties of the manufactured products. The first two aspects of steel research Mac Gregor prefers to be left in the hands of the Universities and the inventors respectively, but the third,

he opines, is the vast field left for research of a routine kind.

Though the results of such researches conducted elsewhere are available, India should have her own centres of research, because the products used by the consumers of this country require special investigations for which local men must be specifically trained. The topic of research most urgent at present is information on the strength, under service conditions of repeated stress, of steel products made in India.

In the usual estimate of the tensile strength of steel, the bearing on it of the effects of off-repeated reversals of loading, of the surface finish of machinery, of the abrupt changes in section of design, of surface decarbonisation and of size effect, is neglected. The real method of ascertaining these effects is to instal machinery for testing full-scale models. For example, India consumes a crore worth of rails, and to institute a laboratory at a total cost of only Rs. 1,000 to do research on the above lines, would be far more profitable than to rely on the conflicting reports observed during tediously long periods of trial.

In experimental plant of the above type, therefore, with the existing facilities for chemical analysis, tensile, bend and hardness testing and microscopic examination is a valuable asset to the metallurgical industrial development of India.

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**Heavy Chemical Industry in India.**—The Alkali and Chemical Corporation of India, Ltd., has been started under the auspices of the Imperial Chemical Industries (India), Ltd., with a capital of Rs. 50,000,000 to develop the heavy chemical industry throughout India. The company proposes to start upon the erection of works for the manufacture of alkalis, in particular sodium carbonate and caustic soda and chlorine.

Detailed technical investigation of the salt and limestone resources in the salt range in the Punjab has proved that they offer the most suitable source of supply for the establishment of the soda ash industry, and it has been decided to establish the works at Khewra in the Jhelum District of the Punjab. It is estimated that to begin with it will be possible to produce soda ash to the extent of about 20,000 tons per year.

The works for the manufacture of caustic soda and chlorine will be erected on a site near Calcutta, this locality having been selected by reason of the demand for these products in this area, and because supplies of raw materials necessary for manufacturing purposes are readily available. The registered office of the Company will be 18, Strand Road, Calcutta (*Chemical Age*, March 26, 1938, pp. 246).

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**The Annual Report of the Rothamsted Experimental Station for 1936** (Price, 2/6) contains as usual, interesting and instructive matter to students of agricultural science. It outlines the present position of the various investigations on soil and fertiliser problems conducted at the Station and gives in full the yield figures for 1936 obtained from some 120 experiments carried out at Rothamsted, Woburn, and numerous commercial farms in different parts of England. The investigations on plant growth and plant products, insect pests and diseases are described in some detail. Long period

surveys of the work of certain departments which have become a feature of Rothamsted reports in recent years, are continued and during the year under review the summaries deal with Field Experiments, Fermentation, Insecticides and Entomology.

In addition to these annual features, selected investigations have been discussed in some detail either because of their bearing on immediate problems or because they have reached a stage which permits summarising several years' work.

The section on grass land investigations describes the work and results on analyses for botanical composition, experiments with ammonium thiocyanate and granular calcium cyanamide for the improvement of neglected and weedy grass land and the manuring of grass land. Nitrogenous manuring of grass land has been shown to be a problem different from that of the annual cultivated crops owing to mixtures of different species of grasses and association with leguminous plants. These have been discussed in detail. Systematic investigations on grass land soils showed that ammonia and nitrate were always low and in contrast to arable land ammonia was always higher than nitrate leading to the inference that herbage takes nitrogen in the form of ammonia directly.

The investigations during eleven years on the relation of cultivation to crop yields have given results which show that yields are not greatly dependent on the particular cultivation methods used so long as the work is done in time.

The effect of fallowing on the yields of wheat on Broadbalk Field brings out the striking difference of behaviour between the starved and the fully manured plots. When the yield is poor, fallowing produces a large increase in yield; in the presence of nitrogenous manures the effect is much less and may even be harmful in the first year following. The benefit due to fallow appears to be only of one year duration as measured in the wheat crop.

Experiments in which farm yard manure, adco and straw *plus* artificials are compared both in the year of application and in the succeeding years for residual effects, show that direct application of straw is the most successful except for potatoes for which dung is the best.

Other selected topics deal with the use of poultry manure, fertiliser requirements for sugar beet and with malting barley.

R. V. N.

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Captain C. W. R. Knight, famous British trainer and photographer of large birds, has returned to England after a successful expedition in South Africa where he filmed rare birds and mammals for the National Geographic Society.

Five months ago, Captain Knight sailed for South Africa, chiefly to film the Crowned Eagle in its native habitat. He discovered that most nests of these eagles are in the highest trees in the forests, making it impossible to build blinds and focus cameras into them. One family of eagles was found, however, with a nest 50 feet from the ground. High surrounding trees made possible the construction of a blind from which every move of the eagles could be observed.

Captain Knight photographed the activities in the nest for weeks while the mother eagle sat on the eggs and the male brought small monkeys

and other animals caught in the vicinity. Because the Crowned Eagles are so fond of monkey flesh, they are called the "ogres of Africa's monkeys". Monkey bones litter the earth beneath their nests.

After the eggs hatched, one of the eaglets died; the other was captured by Captain Knight who will train it to falconry.

Captain Knight's motion picture and still camera also recorded rare shots of the Secretary Bird which is rapidly becoming extinct. A member of the vulture tribe with stilt-like legs, this bird kicks snakes, lizards, and moles to death, then swallows them whole. The photographs of the Secretary Bird feeding its young on lizards, locusts and snakes may help to deter misguided inhabitants of Africa from destroying a bird which, because it resembles a vulture or eagle when on the wing, is so frequently destroyed.

The explorer also made photographic studies of the White Rhino, giraffes, hammer-head storks, giant sand moles, wildebeests and monkeys.

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**Nanga Parbat Expedition.**—The members of the German Expedition to Nanga Parbat have recently arrived. The party will be led by Dr. Bauer, and consists of some experienced climbers including Dr. Buchwood who will be climbing Nanga Parbat for the fourth time and Dr. Luth, the sole survivor of last year's expedition. An aeroplane will assist the expedition by conveying rations and other supplies, and also messages to the climbers during the various stages of the ascent.

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**Mount Everest Expedition, 1938.**—The Fifth Expedition led by Mr. W. H. Tilman reached the base camp situated near the snout of the Rongbuk glacier on April 6th and has commenced its upward march. The members of the Expedition are Mr. W. H. Tilman, Captain N. E. Odell, Captain P. R. Oliver, Messrs. E. E. Shipton, F. S. Smythe, C. B. M. Warren and Peter Lloyd.

Mount Everest, the highest of all the Himalayan peaks, is over 29,000 feet high and has so far defied the attempts of four expeditions. The highest point so far reached is 28,130 feet during the fourth expedition of 1933, by Smythe and Shipton who were balked of their purpose by the fury of the monsoon. The first pioneering expedition which was of a reconnoitering nature was made in 1921. A height of 23,000 feet was reached and this was exceeded (27,300 feet) during the second attempt led by General Bruce in 1922. Lt.-Col. Norton led the third expedition in 1924 when he reached a point fixed by the theodolite at 28,130 feet. Two of the members, Mallory and Irvine, probably proceeded higher up, but they never returned to tell the tale. Nine years later, in 1933, Hugh Rutledge led the fourth expedition but this too proved unsuccessful. Subsequent to this in the years 1935 and 1936, the Everest regions were carefully explored by Messrs. Shipton and Rutledge. Aeroplanes have flown over the summit of the Everest, but so far no man has set foot there. It is to be hoped that with the knowledge of the regions accumulated by the attempts of the previous expeditions and surveys and the experience gained by the members, the present expedition will be able to succeed where the previous ones failed.

Among the peaks of the Himalayas, Mount Nanda Devi (25,645 ft.) and Mount Kamet (25,447 ft.) have so far been ascended. Mr. Tilman led the party which climbed Nanda Devi last year, and Messrs. Shipton and Smythe were comrades in the successful attempt on Mount Kamet in 1931. Mr. Shipton is the recipient of the Gild Memorial Medal of the Royal Geographic Society, awarded in recognition of his valuable survey of the inner Nanda Devi basin.

**Rancidity in Edible Fats.**—An account of the current state of knowledge concerning the development of rancidity in edible fats and fat-containing foods is presented in the *Food Investigation Special Report* No. 46 (H.M. Stationery Office; Price 3sh. 9d.). Emphasis has been laid chiefly on the more scientific aspects of the problem, but details of methods likely to prove of practical value in the diagnosis and correction of faults have also been included.

**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 23rd Report just issued records and discusses the results obtained in the year ending 31st March, 1937. (H.M. Stationery Office, London, 1938; price 7s. 6d.). It also contains two special sections. The first explains the purpose and meaning of the detailed results obtained from the Deposit Gauge. The second is a discussion of the effect of the site of the observing instruments, on the results obtained and, in amplification of this, brief descriptions of the sites of present observing stations are given in an appendix.

**Indian Chemical Society.**—In accordance with the recommendations of the Board of Examiners, the Council of the Indian Chemical Society has awarded the Sir P. C. Ray 70th Birthday Commemoration Medal and J. M. Das Gupta Memorial Medal to Dr. Nripendra Nath Chatterjee and Dr. B. S. Srikantan respectively.

The Board of Editorial Correspondents for the Industrial and News Edition of the *Journal* of the Indian Chemical Society has been formed with the following gentlemen:—Dr. C. Barat, Dr. Atma Ram, Mr. B. B. Dhavale, Mr. P. N. Das Gupta, Dr. H. K. Sen, Dr. J. K. Chowdhury, Dr. S. Krishna, Dr. K. G. Naik.

The first issue of the *Journal* will be published by June.

In accordance with the new rules as adopted at the last Annual General Meeting of the Indian Chemical Society at Calcutta, Prof. P. Ray and Prof. J. N. Ray, have been elected Hon. Editors. The following have been elected as members of the Board of Associate Editors for the *Journal* of the Society.—Dr. P. K. Bose, Dr. B. B. Dey, Dr. P. C. Guha, Dr. S. Krishna, Dr. T. S. Wheeler, Dr. S. S. Bhatnagar, Dr. N. R. Dhar, Dr. J. C. Ghosh, Dr. S. S. Joshi, Dr. J. N. Mukherjee, Dr. B. C. Guha, Dr. P. B. Sarkar, and Dr. H. K. Sen.

The name of the Malaria Survey of India has been changed to **Malaria Institute of India**. The headquarters of the organisation will remain at Kasauli, Simla Hills.

We congratulate Miss Kamala Bhagvat, M.Sc., being the first member of the Federation of University Women in India to gain an International Fellowship. This is the Crusade Fellowship awarded by the American Association of University Women. Miss Bhagvat will work in Organic Chemistry at Carlsberg Laboratories, Copenhagen, or in a British University.

**University of Mysore.**—*Personnel.*—Mr. K. K. Ramaswami, B.Sc., A.C.G.I., M.I.E. (India), Professor of Mechanical Engineering, College of Engineering, Bangalore, is appointed Principal, College of Engineering, Bangalore, with effect from the 26th February 1938.

*Summer School of Geography.*—At the invitation of the University, the Madras Geographical Association held its Summer School of Geography in the College of Engineering, Bangalore. The School was inaugurated on 11th April 1938 by Rajamantrapravina Mr. S. P. Rajagopalachari, B.A., B.L., First Member of Council. The Session continued till the end of the month. There were 54 teachers attending the School,—16 deputed by the University, 24 by the Department of Public Instruction in Mysore and 14 others.

*Examinations.*—The results of the Medical, Engineering and B.T. Degree Examinations held in March 1938 were announced. They were as under:—

Examination	No. Examined	No. Passed
1. First L.M.P. .. ..	49	27
2. Second L.M.P. .. ..	46	24
3. Third L.M.P. .. ..	52	23
4. Final L.M.P. .. ..	63	35
5. Final M.B.B.S., Part II ..	22	12
6. B.T. .. ..	57	33
7. First Examination in Engineering .. ..	68	41
8. Second Examination in Engineering .. ..	71	40
9. B.E. .. ..	44	39

**Universities in U.P.**—According to an *Associated Press* report, Acharya Narendra Deo will be the Chairman of the Enquiry Committee appointed by the Government of the United Provinces to examine and report on the working of the Provincial Universities in the Province (see this *Journal*, 6, April 1938, page 539). Other members are Pandit Hridayanath Kunzru, Mr. Sri Prakash and Mr. Niamathullah.

#### Announcements.

**Association of Surgeons in India.**—The Meeting of the Association will be held at Bombay on 22-24 October 1938. Discussions on two subjects: (1) Ileo-Cæcal Tuberculosis and (2) Carcinoma of the Tongue, have been organised. The Organising Secretaries request the surgeons all over India to contribute papers of interest for discussion at the Session.

A Reception Committee for making local arrangements has been formed at Bombay. Dr. M. D. D. Gilder, M.D., F.R.C.S., Minister for

Public Health, Bombay, will preside and deliver the Inaugural Address of the Session.

Further particulars regarding the meeting can be had from Dr. C. P. Viswanatha Menon, M.S., F.R.C.S., "Binfield," Kilpauk, Madras.

**Robert Kotch Memorial Prize.**—The Scientific Research Committee of the All-India Medical Licentiate's Association has decided to award a cash prize of Rs. 100 for the best original article on "Tuberculosis in India" which should be confined to Pulmonary Tuberculosis with aetiology, pathology, signs, symptoms and treatment, both medical as well as preventive. It must be based on original survey conducted by the candidate himself. The article which should not cover more than 1,000 lines of foolscap paper should reach Dr. Jai Gopal, Medical Officer-in-charge of Dipalpur Dispensary, Dt. Montgomery, Punjab, not later than October 31st, 1938. All members of the All-India Medical Licentiate's Association are eligible to compete.

Further information regarding the subject can be had from T.C. Basu Chaudhury, Esq., Secretary, Scientific Research Committee of the All-India Medical Licentiate's Association, "Prasadapura House", Agra.

**Dr. B. S. Shroff Memorial Gold Medal.**—The Bombay Medical Union has selected the subject "Tuberculosis in General, paying Special Attention to its Prevention and Treatment", for the award of the medal for the year 1938. The competitor must be a duly qualified member of the medical profession holding the diploma of membership of the College of Physicians and Surgeons of Bombay. Six typed copies of the thesis must be sent so as to reach the Honorary Secretary, Bombay Medical Union, Blavatsky Lodge Building, French Bridge, Choupatty, Bombay, on or before 15th August 1938. The thesis should be designated by a motto instead of the writer's name and should be accompanied by a sealed cover containing the name of the author and his address.

**Far Eastern Association of Tropical Medicine.**—The Tenth Congress of the Far Eastern Association of Tropical Medicine will be held at Hanoi (Address "Igesante", Hanoi, Indochine) from the 24th to 30th November 1938.

All licensed Medical, Dental and Veterinary practitioners are eligible for membership. The Membership Fee for the period 1934-38 is £3 (or Rs. 40-2-0) and should be paid to the Local Provincial Secretaries of the Far Eastern Association of Tropical Medicine, to whom the names of members in their areas should be submitted. The members are also requested to inform the Local Secretaries whether they propose attending the Congress. The titles of any papers which it is proposed to place before the Congress should be submitted to the Local Secretaries at an early date. Arrangements will be made for the reading at the Congress of any paper submitted by a member who is unable to attend.

The Ninth Congress held at Nanking in 1934 decided that sections on Food Problems and Sanitary Measures with reference to Sewage and Garbage Disposal should also be added to the programme of the Tenth Congress.

Further information may be obtained from the Local Provincial Secretaries or from Lt.-Col. C.

Covell, M.D., D.P.H., D.T.M. & H., F.R.E.S., I.M.S., Director, Malaria Institute of India, and Local Secretary of F.E.A.T.M. for Government of India, Kasauli, Punjab, or the Honorary General Secretary, Far Eastern Association of Tropical Medicine, Parapattan 10, Batavia (Centrum), Java.

**The International Horticultural Congress** will be held in Berlin from August 12-20, 1938. The work of the Congress will be carried on under twenty sections, including fruit growing, vegetable-growing, cultivation of flowers and ornamental plants, horticultural seed growing, nurseries, nomenclature, plant protection, scent and medicinal plants, etc.

The delegation from India will be composed of Dr. W. Burns and Prof. H. Choudhury.

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Our attention has been drawn to an error in the note on *Kayakalpa* appearing in the April number, page 537. It is mentioned in line 22 of the note that *Palas* is the vernacular name for *Ficus religiosa*. This is incorrect. The correct botanical name is *Butea frondosa* Koenig, Syn. *B. monosperma* O. Kuntze. This tree is also known as *Dhak*, *Tesu*.

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We acknowledge with thanks, receipt of the following:—

- "Agricultural Gazette of New South Wales," Vol. 49, No. 4.
- "American Museum of Natural History," Vol. 51, No. 4.
- "Biochemical Journal," Vol. 32, No. 3.
- "Berichte der Deutschen Chemischen Gesellschaft," Vol. 71, No. 4.
- "Bulletin of the Carnegie Institute of Washington," Vol. 4, No. 27.
- "Bulletin of the American Meteorological Society," Vol. 19, No. 1.
- "Bombay Natural History," Vol. 40, No. 1.
- "Canadian Journal of Research," Vol. 16, No. 3.
- "Chemical Age," Vol. 38, Nos. 978-81.
- "Calcutta Medical Journal," Vol. 33, No. 5.
- "Experiment Station Records," Vol. 28, No. 3.
- "Forschungen und Fortschritte," Vol. 14, Nos. 10-12.
- "Genetics," Vol. 23, No. 2.
- "Indian Medical Gazette," Vol. 73, No. 3.
- "Indian Trade Journal," Vol. 129, No. 1663.
- "Indian Journal of Venereal Diseases," Vol. 4, No. 1.
- "Indian Journal of Physics," Vol. 12, Part 1.
- "Indian Forester," Vol. 54, No. 5.
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- "Monthly Bulletin of Agricultural Science and Practice," Vol. 29, No. 3.
- "Mathematics Student," Vol. 5, No. 3.
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## ACADEMIES AND SOCIETIES.

### Indian Academy of Sciences :

April 1938. SECTION A.—K. VENKATACHALIENGAR: *On a Problem of the Tetrahedron.*—Proceeding from a geometrical point of view, the theorem is enunciated that the tetrahedron of maximum volume is an orthogonal one. S. N. RAO: *Derivatives of 1-Hydroxy-2-naphthoic Acid. Part IV.—Compounds derived from 4-Nitro-1-hydroxy-2-naphthoic Acid and its Methyl Ether.* B. Y. OKE: *The Electrostatic Forces and the Elasticity Constants.*—An error in the previous papers by the same author is indicated. This does not however affect the numerical calculations in those papers. R. C. SHAW AND B. V. SAMANT: *C-Alkyl Resorcinols. Part III.—A Direct Synthesis of Rhizonaldehyde.*—The synthesis is effected directly from orcinol by converting into orcyaldehyde and subsequent nuclear methylation with methyl-alcoholic KOH and MeI. K. S. K. IYENGAR: *A Note on Narasinga Rao's Problem relating to Tetrahedra.*—The uniqueness of the orthogonal tetrahedron having the maximum volume and the given numbers for the areas of its faces is proved. FAQIR CHAND AULUCK: *The Volume of a Tetrahedron, the Areas of the Faces being Given.* S. PARAMASIVAN: *Technique of the Painting Process in the Temple of Vijayalaya Cholivaram in the Pudukkottai State.* B. S. MADHAVA RAO: *Question of Invariance in the Neutrino Theory of Light.* S. RANGASWAMI, V. SUBBA RAO AND T. R. SESHADRI: *Reactivity of the Double Bond in Coumarins and Related  $\alpha$ : $\beta$ -Unsaturated Carboxyl Compounds. Part V.—Action of Mercuric Acetate on Cinnamic Acid and Its Derivatives.*

April 1938. SECTION B.—G. N. RANGASWAMI AYYANGAR, V. PANDURANGA RAO AND T. VENKATARAMANA REDDY: *Studies in Sorghum.—Internodes and Leaf-Sheaths.*—A record of the metrical attributes of the internode, the leaf-sheath and the node, in some of the typical varieties of Sorghum. I. FROILANO DE MELLO, NARANA GANENCAR AND DATTÁ LOUNDÓ: *On a Flagellate of the Intestine of Tatera indica Hardwicke.*—The morphology and life-cycle of a curious flagellate found in the intestine of the field rat, have been described. N. KESAVA PANIKKAR: *Studies on Peachia from Madras.*—A new species of anemone designated *Peachia tropica* is described. S. AHMAD: *A Study of Aitchisoniella himalayensis Kash.*—From a detailed study of *Aitchisoniella* it is concluded that *Exormothica* can no longer be regarded as the lowest type of Compositæ as *Aitchisoniella* breaks down the boundary line existing between Compositæ and Targioniaceæ making the one pass insensibly into the other. The two families should be merged into the family

Marchantiaceæ as previously suggested by Prof. Kashyap.

### Indian Association for the Cultivation of Science:

(Proceedings, Vol. 21, Part 1.)

March 1938.—R. D. JOSHI: *Effect of Temperature on the Electrical Constants of Soil at Radio-Frequencies.* S. M. MITRA: *Raman Effect in Boric Acid and Some Boron Compounds.* BIRENDRA-KRISHNA MOOKERJEE: *On Anomalous Depolarization of Light Scattered by Binary Mixtures.* A. GANGULI: *On the Theory of Liquids.* S. C. SIRCAR AND J. GUPTA: *On the Origin of New Raman Lines due to Molecules in the Solid State and of the Wing due to Liquids.* S. K. MITRA AND H. RAKSHIT: *Distribution of the Constituent Gases and their Pressure in the Upper Atmosphere.* I. RAMAKRISHNA RAO AND P. KOTESWARAM: *The Constitution of Heavy Water.* R. C. MAJUMDAR: *The Theory of Molecular Dissociation and the Fundamental Mechanism in Upper Atmosphere.*

### Indian Chemical Society :

February 1938.—K. GANAPATI: *Synthesis in the Alloxazine, isoAlloxazine (Flavin) and Lumazine Groups. Part II.—Synthesis of some Amino Derivatives of Alloxazine and Thioalloxazine.* PANCHANAN NEOGI AND NIHAR KUMAR DUTT: *New Compounds of Gallium. Part III.—Preparation and Resolution of Complex Oxalato Compounds of Gallium into Optical Isomers.* HARBHAJAN SINGH MAHAL: *Quercetagenin from the Flowers of Tagetis erecta.* TEJENDRA NATH GHOSH: *Quinoline Derivatives—Part IV.* MAHADEO PRASAD GUPTA AND SIKHIBHUSHAN DUTT: *Chemical Examination of the Seeds of Solanum xanthocarpum, Schard and Wendle. Part II.—The Constituents.* N. R. CHATTERJEE, S. GHOSH AND R. N. CHOPRA: *Studies on the Enzymes of the Seeds of Butea frondosa. Part I.—Proteolytic Enzyme.* N. R. CHATTERJEE, S. GHOSH AND R. N. CHOPRA: *Studies on the Enzymes of the Seeds of Butea frondosa. Part II.—Lipolytic Enzyme.* SHIAM KISHORE VASISTHA AND SALIMUZZAMAN SIDDIQUI: *Chemical Examination of Mango 'Chep' the Exudation of the Fruit of Mangifera indica.* N. N. MURTY: *A Note on the Action of Chlorine-bleach on the Resin Constituents of Lac.*

### Meteorological Office Colloquium, Poona :

April 5, 1938.—DR. K. R. RAMANATHAN: "The general circulation of the atmosphere over India and the neighbourhood, as deduced from pilot balloon observations".