SCIENCE NOTES AND NEWS

Solar Influences on Terrestrial Conditions.—The studies made at the Solar Physics Observatory, Kodaikanal, of the periodic phenomena connected with solar activity, such as, the number and dimensions of spots, prominences, bright and dark markings, show that the present solar cycle, which began in 1933, reached its maximum intensity in 1937, and remained at the maximum all through 1938. At the moment, the activity is on the down grade and may be expected to reach its minimum in 1943–44.

Some of the short-lived, sporadic phenomena studied are the eruptions which present a variety of appearances and effects. For example, on June 2, 1937, a very massive prominence with a base of 1,67,000 miles and a height of 85,000 miles, which had been stable for more than three days, was suddenly blown up presumably by an eruption. On several occasions eruptions on the sun were found to cause radio "fade-outs" and general dislocation of radio communications. Particularly, when vigorous eruptions in the neighbourhood of sunspots close to the central meridian were observed, magnetic and electric disturbances invariably occurred on the earth. A remarkable instance of such solar influences on terrestrial conditions was the great magnetic storm and auroral display of March 24, 1940, when a great eruption affected several hundred million square miles of the sun's visible surface.

Forest Research in India and Burma during 1940–41.—The first part of this annual publication (Manager of Publications, Delhi, Rs. 1-12) recently issued, records the work turned out during the year at the Forest Research Institute, Dehra Dun. It was inevitable that war supply problems should preponderate in the research programme for the year. The authorities responsible for the policy of the Institute decided that research should be the main preoccupation even during the war. During times of stress, it is not easy to resist the temptation of converting such institutions to mere supply units. The wisdom of the authorities in taking this major decision of policy could be seen in practically every page of the present publication wherein practical solutions of many problems ranging from army hutments to tent pegs, are intermingled with the results of "pure" research in "sylviculture" whose contribution to the development of Indian forest research would be substantial even in the post-war period.

This report of 161 pages consists of seven chapters; the first one gives very readable summaries of the several branches of the Institute, prefaced by a "General" summary. The following six chapters give more detailed accounts of the work in the sylvicultural, utilisation, entomology, chemistry and timber development branches. Not the least important amongst the contributions of the Forest Research Institute to the war effort is the provision of trained personnel for jobs requiring specialised training. During the year, 43 publications emanated from the Institute in addition to 26 papers in scientific journals. The total expenditure of the Institute was about 6½ lakhs of rupees.

Root-Inducing Substances.—The root-inducing activities of indole acetic acid, naphthalene acetic acid, phenylacetic acid and their esters have attracted the attention of both scientists and nurserymen, and large-scale experiments have been carried out to utilise these substances for clonal propagation of economic plants. The growth substances induce root formation when they are used in dilute solutions, and the effective concentration can only be determined by a series of tests. Lanolin, water and talc powder can be made use of as carriers.

In a recent work Hitchcock and Zimmerman (*Contr. Boyce Thompson Inst.*, 1940, 11, 143) have shown the root-inducing properties of these substances when they are used in mixtures. A higher percentage of rooted cuttings and uniform rooting was manifested in cases of application with mixtures. Vitamin B_1 and ethylene functioned as activators for root formation when they were applied in combination with the growth substances. M. J. T.

Pupation of *Ephestia kuehniella* Zell.—Old prepupa, a high percentage of younger prepupæ, and a few old larvæ of *E. kuehniella*, can pupate at 6–9° C. (42·8–48·2°). The young prepupæ and old larvæ that are unable to pupate at this low temperature, develop into "permanent larvæ", living considerably longer than their pupating age-mates, without pupating. Larvæ kept for 2–8 months in this temperature are able to pupate if returned to room temperature. If, however, their heads, the source of the pupation harmone, are tied off, they become permanent larvæ, surviving as long as 2–3 months in the larval state. It is concluded that the formation of the pupation harmone is inhibited by exposure to low temperatures and there is some indication that the tissues can, perhaps, react to a harmone stimulus at low temperature (Caspari, *J. Expt. Zool.*, 1941, 86).

The Indian Lac Cess Committee.—The annual report for the year ending 31st March 1941, records the activities of the Indian Lac Research Institute in India, the London Shellac Research Bureau and the Special Officer, Lac Inquiry and Co-operative Research.

A refreshing feature of the Committee's work is the co-operative research started in this country and in England. The Committee has made grants to Messrs. The Metropolitan-Vickers

Electrical Company, Ltd., and the India Moulding Company, Calcutta. We are also told that steps have already been taken to carry out co-operative research work on rubber-shellac combinations in India.

Special mention should be made of the exceedingly practical step taken by the Committee in sanctioning a sum of Rs. 2,000 for practical aid to be given in 1941-42 to manufacturers of lac in trying out experimentally improvements effected at the Indian Lac Research Institute in methods of manufacture and utilisation of lac. It is hoped that this praiseworthy step will soon result in the stabilisation and expansion of the old industries and in the creation of new ones.

Charcoal for Lorries and Buses.—An important leaflet relating to the production of charcoal, suitable for producer gas for lorries and buses, has recently been issued by the Forest Research Institute. Owing to the urgent need for conserving petrol, attention has centred on the possibility of converting a large number of lorries and buses into charcoal-gas vehicles. There are now some 37,000 such vehicles in British India and assuming that half of these are to be converted to run on charcoal gas, approximately 18,000 tons of charcoal per month will be required. India can produce suitable charcoal for the purpose; what is needed is organization especially in the spheres of supply, grading and distribution.

Any hard, close-textured wood makes good charcoal. The harder and closer-textured the wood is, the better the charcoal for producer gas, provided its ash content is low. *A few* of the suitable woods listed in the leaflet are:—Babul (*Acacia arabica*), axle-wood (*Anogeissus latifolia*), casuarina, anjan (*Hardwickia binata*) and the oaks (*Quercus* spp.). The charcoals produced from these woods have been tried on producer gas plants and found suitable. Leaflet No. 9 (published by the Forest Research Institute, Dehra Dun) gives specifications for producer-gas charcoal, and other information likely to be of use to charcoal manufacturers.

Locust Situation in Northern India.—In spite of the cold weather, locust swarms in the fortnight ending on December 20, 1941, were active in the western United Provinces, southern and western Punjab and eastern districts of Baluchistan. There was very little swarm activity in the permanent breeding areas, *viz.*, Rajputana, desert parts of Sind and coastal areas of Baluchistan. In the Punjab and the U.P., the conditions are ominous as they generally receive rain during spring when due to rise in temperature the over-wintering locusts are expected to breed if soil-moisture conditions become suitable.

American Technical Mission for India.—The announcement that an American Technical Mission is to visit India is of considerable interest. Until the summer of 1941 when the effect of the Lease-Lend legislation in the United States began to be felt in India, contacts between India and the United States had remained more or less normal. America was buying mica, manganese, and other raw materials from India, while India was buying from America motor vehicle chassis, machine tools, and other things required for the war effort, as well as a large range of ordinary merchandise the flow of which was naturally restricted by the dollar exchange position.

With the establishment of the Indian Purchasing Mission in the United States, the position has changed. India has had to state very fully her case for
and after a study of the documents presented to them by Sir Shanmukham Chetty the American experts suggested that India might benefit considerably by the visit of a Technical Mission from America. This suggestion has been welcomed by the Government of India, the more so in that they are well aware that in America, as in the other Allied countries, experts are very fully occupied at the present time with war production. It is hoped that the Mission may be able to fill some of the gaps in India's munitions production.

The Government of the United Kingdom have been actively concerned with the development of India's resources for the supply of war requirements by implementing the recommendations of the Chatfield and Roger Mission reports and otherwise. They have expressed their appreciation of the initiative of the Government of the United States of America and their confidence that it will lead to valuable results in supplementing what has already been done.

Indian Central Jute Committee.—According to a press note dated 4th March 1942 issued by the Publicity Officer, the Indian Central Jute Committee, in furtherance of its policy of associating the Universities in research work on jute, has sanctioned a grant of Rs. 16,580 for 1942-43 to be distributed as follows:—

University of Calcutta:—Schemes for X-Ray Research on jute fibres by Prof. M. N. Saha—Rs. 5,060; Investigation on the chemical utilisation of jute and jute waste by Dr. B. C. Guha—Rs. 2,800; Bio-chemical investigations of the processes involved in the retting of jute by Dr. B. C. Guha—Rs. 2,300.

University of Dacca:—Scheme for impregnation of bleached fibre with suitable resins by Dr. J. K. Chowdhury—Rs. 3,300.

Presidency College:—Researches relating to the growth and development of jute fibre by Prof. B. C. Kundu—Rs. 3,120.

The total approximate financial liability of the Committee in connection with these schemes, spread over three years, is expected to be Rs. 46,980.

Research Scholarships and Fellowships in the University of Patna.—With a view to stimulate and intensify research, the University of Patna have provided Rs. 15,000 for the year 1941. In consideration of the present conditions, the Syndicate have felt the need of giving special encouragement for the prosecution of research in the pure and applied sciences. Under the new scheme which was drawn

by a Special Committee appointed for the purpose, the value of the research scholarships has been raised to Rs. 100 per month, ordinarily open to graduates of the Patna University. The University have also instituted Research Fellowships of the value of Rs. 150 per month, open to candidates who have secured the degree of PH.D., or M.D., or M.S., of the Patna University on the basis of their researches. These candidates are expected to devote the whole of their time to research and are not permitted to undertake any other kind of work.

The Syndicate has also come to the conclusion that "Research Scholarships may be awarded to suitable candidates of the University to work at institutions outside Patna, *e.g.*, Jamshedpur Research Institute, Indian Institute of Science at Bangalore, etc., and other similar places, where graduates of the Patna University may be admitted to work under eminent and distinguished scientists. The Vice-Chancellor has also been advised that the problems of research chosen should be of immediate value to the areas under the jurisdiction of the Patna University. It would be appreciated, that research in such subjects as mining, mineralogy and geology, are of supreme importance. But, as no scheme is ready whereby admission of Patna University graduates is assured to institutions where such researches can be carried on, the Syndicate has felt that for the time being, it is precluded from awarding scholarships for research at any such places. As soon, however, as such a scheme is worked out, it is proposed to award scholarship for research in those subjects."

Scientific and Industrial Research Board, Hyderabad.—The Second Meeting of the Board was held under the presidentship of the Hon. Nawab Sir Aqeel Jung Bahadur, on 27th December 1941, to consider the programme of researches recommended by the various research committees under the Board and to allocate funds. The Chairman of each committee explained the schemes of research proposed by his committee after which there was a full discussion regarding the relative importance and utility of different problems. A total grant of Rs. 21,500 for a period of one year was sanctioned by the Board for carrying out research work on certain problems recommended by the research committees. The grant was distributed among the various committees as follows:—

Vegetable Oil Utilization Committee—Rs. 2,500; Pharmaceutical and Drugs Committee—Rs. 4,000; Fuel Committee—Rs. 500; Fibre Research Committee—Rs. 2,000; Ceramic Research Committee—Rs. 4,000; Heavy Chemicals Committee—Rs. 5,000; Forest Products Utilization Committee—Rs. 1,000; Industrial Ferments Committee—Rs. 2,500.

Medical Degrees which are not Recognised in India.—The Medical Council of India have recommended to the Government of India that the recognition of medical degrees granted by certain Universities in Australia, South Africa, Ceylon, Canada, Hongcong and Malaya should be discontinued as these countries recognise Indian medical qualifications only when the qualifications are recognised by the General Medical Council in the United Kingdom. The Government of India have accepted the recommendation.

The withdrawal of recognition will affect only degrees to be granted after March 31, 1942.

The Medical Council is prepared to enter into negotiations for the mutual recognition of medical qualifications with countries which are willing to recognise Indian qualifications on the basis of direct reciprocity.

The Universities concerned are:—The University of Sydney. The University of Adelaide, The University of Capetown, The University of Witwaterstand. Johannesburg, the Ceylon Medical College, Nova Scotia Provincial Medical Board, Dalhousie University, The University of Hongkong, and the King Edward VII College of Medicine, Singapore.

Dr. N. Kesava Panikkar, M.A. (HONS.), D.SC., Empire Overseas Research Scholar of the Royal Commission for the Exhibition of 1851, has been appointed Professor of Zoology in H. H. The Maharaja's College of Science, Trivandrum. Dr. Panikkar is a distinguished graduate of the Madras University and a member of the staff of the Madras Christian College. He was awarded the Exhibition Scholarship in 1938 for research in Marine Biology. While in England, Dr. Panikkar was engaged in the study of the mechanism of physiological adaptation in animals. He has some 26 papers to his credit.

Information has been received that the Royal Society has provided a special grant for his researches at Travancore.

Calcutta University.—Dr. Bidhan Chandra Roy has been appointed Vice-Chancellor of the Calcutta University for a period of 2 years in succession to the Hon'ble Sir Azizul Haque who has been appointed High Commissioner for India in London.

Andhra University.—At the meeting of the Senate held on the 14th March, Sir C. R. Reddy was unanimously re-elected Vice-Chancellor of the University for a further period of three years. The election was uncontested. Sir C. R. Reddy possesses the unprecedented record of having been elected Vice-Chancellor for five terms.

SEISMOLOGICAL NOTES

During the month of February 1942, one moderate and two slight earthquake shocks were recorded by the Colaba seismographs as against three moderate, and six slight ones recorded during the same month in 1941. Details for February 1942, are given in the following table:—

Date	Intensity of the shock	Time of origin I. S. T.	Epicentral distance from Bombay	Co-ordinates of the epicentre (tentative)	Depth of focus	Remarks
February 1942		H. M.	(Miles)		(Miles)	
16	Slight	23 39	5870	..	..	
21	Moderate	12 38	4230	..	..	
22	Slight	03 17	1300	Lat. 27° N., Long. 92° E., in Assam	..	Reported to have been felt in parts of Bengal and Assam

MAGNETIC NOTES

February 1942, was magnetically more disturbed than the previous month. There were 12 *quiet* days, 12 days of *slight* disturbance and 4 of *moderate* disturbance during February 1942, as against 5 quiet days, 22 days of slight disturbance and one of moderate disturbance during February of last year. The day of largest disturbance during February 1942 was the 23rd and the quietest day was the 18th.

The characters of individual days were as follows:

Quiet days	Disturbed days	
	Slight	Moderate
3, 4, 7-9, 11-13, 17, 18, 21, 26.	1, 2, 10, 14-16, 19, 20, 22, 24, 25, 27.	5, 6, 23, 28.

No magnetic storms were recorded during the month of February this year as also last year. The mean character figure of the month is 0·71 as against 0·86 for February of last year.

M. R. RANGASWAMI.

ASTRONOMICAL NOTES

Planets during April 1942.—Venus will be a conspicuously bright object visible in the eastern elongation from the Sun (46° 19′). Mercury: On April 14, the planet reaches greatest western elongation from the Sun (46° 19′). Mercury likewise will be a morning star in the first half of April, but will be too close to the Sun to be well seen during the month; it is in superior conjunction on April 20 and passes afterwards into the evening sky. The four major planets Mars, Jupiter, Saturn and Uranus continue to be near each other in the constellation Taurus and can still be seen in the western sky for a short while after sunset. In their eastward motion among the stars Mars will overtake Jupiter on April 4 when there will be a close conjunction of the two planets. Similarly Saturn overtakes Uranus on April 28 and as the objects will be fairly close to each other at the time (Saturn about a degree and a half to the south of Uranus) it will not be difficult to locate the latter planet with some slight optical aid.

T. P. B.

ANNOUNCEMENTS

The Indian Geographical Association.—At the annual meeting of the Madras Geographical Association held at Madras on March 7, a resolution to the effect that the name of the Association should be changed to the Indian Geographical Association was adopted. The *Journal of the Madras Geographical Association* will henceforth be called the *Indian Geographical Journal*. The headquarters of the Association will continue to be at Madras and provision has been made for starting local branches all over India.

A Fresh Cycle of Desert Locust in India (*Curr. Sci.*, 1941, 10, 479).—We have been informed that the map illustrating the article has been adapted with modifications from Uvarov (*Imp. Bur. Ent.*, London, 1928, pp. 252-55). We regret that this was not mentioned in the article.

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We acknowledge with thanks receipt of the following:—

"Journal of the Royal Society of Arts," Vol. 90, Nos. 4601-4603.

"Journal of Agricultural Research," Vol. 63, Nos. 7-8 and 11.

"Biochemical Journal," Vol. 35, Nos. 8-9.

"Contributions from Boyce Thompson Institute," Vol. 12, No. 3.

"Journal of Chemical Physics," Vol. 9, Nos. 11 and 12.

"Journal of the Indian Chemical Society," Vol. 18, No. 11.

"Chemical Products," Vol. 5, Nos. 1-2.

"Indian Forester," Vol. 68, No. 3.

"Transactions of the Faraday Society," Vol. 37, Part 12.

"Indian Farming," Vol. 3, No. 2.

"Indian Central Jute Committee (Bulletin)," Vol. 4, No. 11.

"Review of Applied Mycology," Vol. 20, Pts. 1 and 2.

"Journal of Nutrition," Vol. 22, Nos. 5 and 6.