SCIENCE NOTES AND NEWS

Chemical Constants of Lac.—The London Shellac Research Bureau has published a bulletin entitled "Chemical Constants of Lac—Some Notes on the Acid, Saponification and Hydroxyl Values of Lac", copies of which may be had from the Indian Lac Cess Committee.

The bulletin shows that the acid value of lac has been determined with three different indicators: Alkali Blue 6B as an internal indicator gives a sharp end-point, and it has been found preferable to use 0·1N alcoholic potash for titration instead of the customary 0·5N.

At least four hours' heating on a water-bath with 0·5N alcoholic potash is necessary to effect complete saponification, further complete saponification is not obtained with absolute alcoholic potash; the presence of water is necessary; and optimum results are obtained with 10 per cent. of water in the alcoholic potash.

For determination of the hydroxyl value of lac, Normann's method has been found convenient and gives reliable results, but it is necessary to allow at least four hours' refluxing with 0·5 N., 90 per cent. alcoholic potash to saponify completely the acetylated lac product.

A New Method for the Preservation of Vegetables.—In addition to the two universal methods of canning and drying vegetables, a new form of preservation has come to light. This is compressing vegetables.

It has been claimed that each pound of compressed vegetables is equal to approximately 12 lbs. of finest fresh vegetables and in this form will keep for an indefinite period under any climatic conditions.

Luminous Paints.—The possibilities of manufacturing luminous paints from Indian ores and from calcium, strontium and barium sulphides at fairly cheap prices, have been indicated by the work carried out at the Alipore Test House, Calcutta. These paints have already been tried in the air raid precaution measures in Calcutta and a demonstration of their effects has been arranged at the Government Test House, Alipore.

The importance of luminous paints was realised in the last Great War, when they were employed for illuminating aeroplane dials, gun sights for night firing, and numbers of vehicles and cycles. The present war, with the increased effectiveness of the bomber and the necessity for black-out restrictions, has given a great impetus to the study of the production of cheap luminous paints.

Paints from Indian Sources.—At least a dozen paint factories are operating in India to-day. These are producing dry colours, paste paints, mixed paints, enamels, varnishes, and oils (excluding raw linseed oil)—virtually every kind of paid manufacture from cheaper qualities to meet the demand of the Indian bazaars to the production of highly specialised qualities for use by railways, shipping, and industrial organizations of all descriptions.

They can also manufacture paints required for war purposes including anti-vesicant, camouflage, and fire-retarding paints.

In addition to paints for such diverse purposes as the protection of bridges or the decoration of India's palaces, a wide range of specialized finishes is produced for industrial purposes. These include synthetic and natural gum enamels and varnishes, vegetable oils, both heat- and chemically-treated and stabilized emulsions of various types, their application ranging from the painting of railway passenger coaches to the water-proofing of indigenous cotton canvas.

Modern research is helping Indian paint industry in many ways. In the laboratories of the Director of Scientific and Industrial Research, has been developed a technique for manufacturing varnishes and paints from the bhilawan nuts to the satisfaction of the trade. The film is more flexible and resistant to shock than that given by any other product in the market.

The Indian Institute of Science has completed research on the manufacture of pigmented lacquers in powder form and the Department of Director of Development, Cuttack, for lacquers on wood. Bleached lac, an important article in the plate varnish and nitro-cellulose lacquer industries and hard lac resin for the varnish and electrical industries have been produced at the Indian Lac Research Institute.

As a result of researches carried out at London and Namkum, several processes of making varnishes from shellac and drying oils have been discovered.

The College of Science in Nagpur, is making attempts to manufacture white lead paint, as well as metal and wood polishes.

The indigenous product has many advantages over the imported articles, for Indian paints, enamels and varnishes are manufactured under the actual conditions in which they are ultimately intended to be used. The factories are now practically all equipped with chemical testing laboratories and control testing rooms, where highly skilled chemists and other workers give specialised attention to each product and the particular problems arising in its general use.

In addition to meeting the growing demand for paint and paint products in this country, Indian supplies have been regularly exported to Burma and Ceylon. With the outbreak of the war, however, additional demands are being made upon the Indian industry and in recent months exports have been made to the Near and Far East, to Persia, Mesopotamia, Africa, Siam, Singapore and the East Indies.

Agricultural Research on Jute.—An important step in the development of agricultural

research on jute in this country has been taken by the establishment of three Agricultural Research Sub-stations by the Indian Central Jute Committee at Kishoreganj (Mymensingh), Konda (Brahmanbaria) and Narayanganj. These centres are situated in some typical and representative jute-growing areas, and according to a press note recently issued by the Indian Central Jute Committee, have started to function from the beginning of this month.

Agricultural Research workers now fully realize that plant-breeding work to be fruitful must be carried on under representative conditions; it is the object of the Central Jute Committee's Research Sub-stations to provide such conditions. They will be run by trained field staff under the control and supervision of the Committee's Director of Jute Research Laboratories at Dacca. The Government of Bengal through the Department of Agriculture are co-operating with the Central Jute Committee in this work, and have already agreed to contribute half the non-recurring and recurring cost of this scheme.

Par-boiled Rice for Troops.—As par-boiled rice is richer in proteins and minerals, it has been decided to make a trial issue to troops to test its palatability, etc. This rice has better keeping qualities and is more economical than the raw milled rice. It is understood that 57 per cent. of the total quantity of rice grown in India is par-boiled before being placed on the market.

Flax Substitute.—A flax substitute "celin" which has selected jute as a base, has been manufactured in Northern Ireland, according to the March issue of the Indian Central Jute Committee's *Bulletin*.

It is claimed that the new fibre can be spun, woven and finished on orthodox flax machinery and is cheaper than flax. Conversion of jute into "celin" is performed by chemical means in a series of tank treatments which take only a few days. Subsequently, it is rolled to the required degree of softness, dried and ready for delivery to the flax spinning mills.

"Celin" has been successfully used as weft in the production of practically all classes of domestic goods and pure "celin" warp and weft have been used in the production of canvas, which is claimed to be better than the cotton-jute union fabric evolved in India.

Another possible new use for jute is in the production of felt. It has been found that thermoplastic fibres such as vinyon can be utilised to produce felts from mixture with other fibres such as glass, asbestos, wool, hair, jute, cotton and rayon, of which jute is the cheapest. By varying the proportions a range of products from soft wadding-like insulating materials to hard flexible tilling can be produced.

Indian Food Fishes.—With the aim of dividing the chief varieties of Indian "food" fish into well-defined groups, the Agricultural Marketing Adviser has compiled and published a "Preliminary Guide to Indian Fish, Fisheries, Methods of Fishing and Curing". The guide is primarily intended for lay-men and instead of minute scientific descriptions provides a catalogue of important characteristics, distinctive markings, peculiarities of shape and other data to enable the lay man to recognise the fish. There is a diagram on art paper of each of the varieties described.

The principal Indian fisheries and the gear used are described at length and illustrated with a number of plates. Many of the implements in use have not changed for nearly a century. In the back-waters of Malabar and South Canara, for instance, the fishermen still use the cross-bow and blow-gun, the fish-spear is used on the Ganges and other rivers to catch cat-fish, while sharks, rays and dolphins are caught off the west coast with harpoons thrown from canoes.

College of Pharmacy.—According to an Associated Press message dated March 19, 1941, the College of Pharmacy Committee appointed by the Government of Bengal with Sir R. N. Chopra as Chairman, has recommended the establishment of a College of Pharmacy in Calcutta.

It is recalled that Dr. D. E. Anklesaria of Ahmedabad agreed to donate a sum of Rs. 2,00,000 to the Government of Bengal for the establishment of such a college.

The Indian School of Mines, Dhanbad.—Of the 21 students who qualified at the Indian School of Mines, Dhanbad, 18 have been placed in employment or are undergoing apprenticeships and one has gone abroad for specialised studies, according to the Annual Report of the School for the year 1939–40, just received.

Recent employment enquiries show that there is increasing demand for specialists, especially in fuel technology and metallurgy. Of the students in employment, two have been sent by their employers to attend advanced courses elsewhere in metallurgy.

The annual Mining Survey Camp was held in November, 1939, at Sijua Colliery, 69 students being under canvas. The Geological Survey Camp was held at Gondhudih Colliery.

The senior geological students went on two educational tours, one in the Hazaribagh, Ranchi and Singhbhum districts and the other in the Northern India Salt Range.

The total number of mining students annually visiting the mining districts, during long vacations, for practical experience, is constantly on the increase. Formerly it used to be between 30 to 40, whereas now the number from the Indian School of Mines alone is over 75 and is increasing. Most of the mining concerns have given and continue to give valuable support in this connection.

Owing to shortage of funds and war-time restrictions, the research activities have been curtailed. The work on washability of coals and the crystallographic investigation of vitrains of Indian coals were, however, continued.

Botanical Society of Bengal.—The Fifth Annual General Meeting of the Society was held on the 22nd February 1941, at the Botanical Laboratory, University College of Science, 35, Ballygunge Circular Road, Calcutta.

Prof. S. P. Agharkar, President of the Society took the chair.

The Hony. Secretary (Mr. S. N. Banerji) presented the Annual Report.

The following were duly elected Office-bearers and Members of the Council for the year 1941–42:

President: Prof. S. P. Agharkar; *Vice-Presidents*: Prof. S. C. Mahalanobis, Prof. G. P. Majumdar, Mr. S. N. Bal, Dr. K. P. Biswas; *Hony. Treasurer*: Mr. I. Banerji; *Members*: Dr. S. R. Bose, Dr. J. C. Sen Gupta, Prof. J. C. Pal, Prof. M. B. Dutta, Prof. M. L. Chakravarty, Dr. N. K. Chatterjee, Mr. E. A. R. Banerji, Mr. R. M. Datta, Dr. J. Chaudhuri; *Hony. Secretaries*: Dr. S. M. Sircar, Dr. B. C. Kundu; *Hony. Auditors*: Mr. J. C. Banerji, Dr. J. B. Mukherji.

An exhibition and a conversazione were organised on the occasion. The list of exhibits included fossil plants, economic and horticultural plants, different strains of rice and sorghum and their hybrids, mulberry with reference to silk-worm rearing, Marine Algæ, Mycology and Plant Pathology, Pteridophytes, Gymnosperms, Cytology. Several experiments showing life processes in plants, different kinds of vegetable fibres, medicinal plants and drugs, Himalayan plants, Alpine flora, Khasi Hill flora, Mangrove vegetation, Parasitic seed plants, Insectivorous plants and Bengal timbers.

A whole day excursion was organised to Sundribans Forest *via* Gosaba, on the 23rd inst. where a rich collection of the mangrove vegetation was made.

The National Academy of Sciences, India.—At the meeting of the Council held on Friday, 21st March 1941, the following resolution was passed: "This meeting places on record its deep sense of sorrow and grief on the sudden and untimely death of the Hon'ble Sir Shah Muhammad Sulaiman, Judge of the Federal Court of India, Ex-President and Senior Vice-President of the Academy, who was such a distinguished and esteemed member of our Academy, and conveys its heartfelt condolence to Lady Sulaiman and her children."

Biological Abstracts.—During 1940, 605 contributions to the increasingly popular field of bioclimatology were summarized in *Biological Abstracts*. The *Bioclimatology-Biometeorology* section proper reported 234 contributions that had appeared in 127 current periodicals and reviewed 31 books. References to climate and weather effects on human physiology, animal and plant behaviour were reported in 340 abstracts in other sections of *Biological Abstracts*, and their subject-matter was outlined, month by month, at the beginning of the *Bioclimatology-Biometeorology* section.

These are the results of the first complete year of reporting research in this field.

Bombay University.—Mr. R. P. Masani has been reappointed Vice-Chancellor of the Bombay University with effect from April 1, 1941.

Aligarh University.—Sir Ziauddin Ahmad was elected Vice-Chancellor of the University at the meeting of the Court held on 20th April.

Madras University.—Mr. P. S. SRINIVASAN has been admitted to the degree of Doctor of Science, in consideration of his thesis entitled "*The Elastic Properties of Molluscan Shells and the Elastic and Thermal Properties of Timber*".

University of Calcutta.—Mr. S. Raghavender Rao has been admitted to the Degree of Doctor of Science in consideration of his thesis entitled "*Studies on the Epidemiology of Plague*".

MAGNETIC NOTES

The month of March 1941 was more active than the preceding month. There were 6 *quiet* days, 18 days of *slight* disturbance, 6 of *moderate* disturbance and one of *very great* disturbance as against 9 quiet days, 12 of slight disturbance, 6 of moderate disturbance, 2 of Great disturbance and 2 of very great disturbance during March of last year. The day of largest disturbance during March 1941 was the 1st and that of least disturbance the 26th. The characters for individual days are given in table below:

Quiet days	Disturbed days		
	Slight	Moderate	Very great
10, 16, 17, 24–26	3–9, 11–13, 15, 18, 20–23, 27, 29.	2, 14, 19, 28, 30, 31.	1

Three magnetic storms, 2 moderate and one of very great intensity were recorded during the month of March this year as against 3 storms (2 of great intensity and one of very great intensity) during March 1940. The mean character figure for the month of March 1941 is 1·03 as against the same figure for March of last year.

M. R. RANGASWAMI.

SEISMOLOGICAL NOTES

March 1941.—During the month of March 1941, one moderate and five slight earthquake shocks were recorded by the Colaba seismographs as against two moderate and four slight ones recorded during the same month in 1940. Details for March 1941 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
March 1941		H.	M.	(Miles)		(Miles)	
12	Slight	03	19	1310			
12	Slight	19	47	4390			
13	Slight	03	07	4420			
16	Moderate	13	12	5270			
17	Slight	02	25	810	Epicentre in the neighbourhood of the Maldive Islands in the Indian Ocean		
29	Slight	02	43	1470			

ASTRONOMICAL NOTES

Planets during May 1941.—Mercury will be in conjunction with the Sun on May 6 and will afterwards pass into the evening sky; it reaches greatest elongation from the Sun on June 4. Venus is an evening star and will be visible low down in the western sky soon after sunset; it is gradually separating from the Sun and at the end of the month, its altitude at sunset will be about 11°. Mars is nearly on the meridian at sunrise and continues to increase in brightness, its stellar magnitude on May 31 being 0·1.

The three major planets, Jupiter, Saturn, and Uranus are all too close to the Sun and not favourably situated for observation. Saturn will be in conjunction with the Sun on May 9, Jupiter on May 19, and Uranus on May 17. Neptune will be on the meridian at about 8 p.m. and continues to move in a retrograde direction in the vicinity of the star β Virginis (magnitude 3·8).

The meteoric showers known as η Aquarids may be seen in the early morning hours before sunrise between May 2 and 6. They are supposed to be associated with Halley's Comet and the position of the radiant point is given by R.A. $22^h\ 32^m$ and Declination 2° South.

T. P. B.

ANNOUNCEMENTS

Kalyankumar Mukherjee Scholarship for 1941.—Applications are invited from graduates of the Calcutta University for the award of the Scholarship for the year 1941. The following subjects have been selected for investigation by the candidates.

(1) Tuberculosis as a community disease.
(2) Nutritional disease in children up to the age of two.

The successful candidate will receive a non-recurring research grant of about Rs. 750. Applications should reach the Registrar of the Calcutta University *before 30th June* 1941.

Essential Oil Industry.—On the recommendation of the Board of Scientific and Industrial Research, the Government of India have set up an exploratory committee for surveying the present position of the essential oil industry in this country. The Committee will consist of Mr. P. A. Narielwala, General Manager, Tata Oil Mills Company Limited, Bombay, (convener), and Mr. J. N. Rakshit, Chemical Examiner to the Government of India (retired).

Enquiries and suggestions made to the Director, Scientific and Industrial Research, concerning the industry and trade as well as the supply of aromatic trees, plants and grasses, will be considered by the Board and the Committee.

Testing of Materials.—With a view to afford some measure of relief in the matter of fees to nascent and undeveloped Indian industries the Government of India have decided, as an experimental measure for one year, to reduce the testing fees to a certain definite extent in cases where Government are satisfied as to the need for concession. To take advantage of this concession firms and individuals will have to apply to the Superintendent, Government Test House, preferably through the Directors of Industries of the respective provinces, substantiating their claims to such concession.

A wide variety of materials, including textile goods, electrical equipment and stores, building and general engineering materials, vacuum brake fittings, metals and alloys, minerals and ores and miscellaneous stores, such as oils, lubricants, paints, varnishes, chemicals, fuels, etc., etc., are tested in the Government Test House, to determine their qualities. The Government of India issue two "Schedules of charges" for tests and analyses—one for Government Departments and the other for private firms and individuals.

Test certificates, bearing the Government seal, which can be used by the firms and individuals for commercial purposes, are issued to all samples tested.

* * *

We acknowledge with thanks the receipt of the following:—

"Journal of the Royal Society of Arts," Vol. 89, Nos. 4577–78.

"Journal of Agricultural Research," Vol. 61, Nos. 4–8.

"Agricultural Gazette of New South Wales," Vol. 52, Pt. 2.

"Indian Journal of Agricultural Science," Vol. 9, Pt. 1.

"Biological Reviews," Vol. 16, No. 1.

"Journal of the Indian Botanical Society," Vol. 20, No. 3.

"Journal of Chemical Physics," Vol. 9, No. 2.

"Journal of the Indian Chemical Society," Vol. 17, Nos. 11–12.

"Chemical Products," Vol. 4, Nos. 1–2.

"Indian Central Jute Committee" (Bulletin), Vol. 3, No. 12.

"Bulletin of the American Meteorological Society," Vol. 21, No. 10.

"Indian Medical Gazette," Vol. 76, No. 3.

"Journal of Nutrition," Vol. 21, No. 2.

"Nature," Vol. 146, Nos. 3713–14 and Vol. 147, No. 3715.

"Indian Journal of Physics," Vol. 14, Pt. 5.

"Canadian Journal of Research," Vol. 18, No. 11 (A.B.C.D.).

"Sky," Vol. 5, No. 5.

"Science and Culture," Vol. 6, No. 10.

"Indian Trade Journal," Vol. 140, Nos. 1812–15.

BOOKS

Temperature, its measurements and control in science and industry. By The American Institute of Physics. (Reinhold Publishing Corporation, New York), 1941. Pp. xiv + 1362. Price $11·00.

Temperature measurement. By Robert L. Weber. (Edwards Brothers Inc., Michigan), 1941. Pp. x + 171.

Practical Histology and Embryology. By Nellie B. Eales. (Macmillan Co., London), 1940. Pp. vi + 111. Price 3*sh.* 6*d.*

The Indian Sugar Industry (1940 Annual). (Messrs. Gandhi & Co., Calcutta), 1941. Pp. 350. Price Rs. 4–8–0 or 12*sh.*

ACADEMIES AND SOCIETIES

Indian Academy of Sciences:
(*Proceedings*)

March 1941. SECTION A.—I. D. SETH: *Reflection and refraction of attenuated waves in semi-infinite elastic solid media.* T. M. K. NEDUNGADI: *Effect of crystal orientation on the Raman effect in naphthalene and benzophenone.* From the observed changes in intensities and the known molecular orientations in the crystal, it is deduced that the incident light vector vibrating in the plane of the aromatic ring excites some oscillations of the molecules much more strongly than the light vector perpendicular to the plane. R. D. DESAI AND W. S. WARAVDEKAR: *Heterocyclic compounds. Part XII. Chromones from resacyl and gallacylphenones containing long-chain acyl groups, and some chemical properties of these hydroxy-ketones.* S. ASHRAF ALI, R. D. DESAI AND H. P. SHROFF: *Heterocyclic compounds. Part XIII. Abnormal alkaline hydrolysis of some 4-isopropyl-1 : 2-α-naphthapyrones.* T. A. S. BALAKRISHNAN: *An elementary theory of the coronas of water droplets.* The water droplets are treated instead of as opaque discs as perfectly transparent spheres in passing through which the wave fronts undergo a phase retardation. K. NEELAKANTAM AND L. RAMACHANDRA ROW: *The lanthanum nitrate test for acetate in inorganic qualitative analysis.* The above test for acetate ion has been examined for use in the routine analysis for mixtures of inorganic substances including the acetate, oxalate, and tartrate radicles. V. SUBBA RAO AND T. R. SESHADRI: *Chemical investigation of Indian lichens. Part III. The isolation of montagnetol, a new phenolic compound from* Roccella montagnei. MOHAMMAD SHABBAR: *On the existence of a metric for path spaces admitting the lorentz group.* S. V. ANANTHAKRISHNAN AND V. PASUPATI: *Substitution in polycyclic systems. Part II. The nitro-derivatives of fluoryl 9-trimethylammonium compounds.* P. BHASKARA RAMA MURTI AND T. R. SESHADRI: *A study of the chemical components of the roots of* Decalepis Hamiltonii (*Makali Veru*). *Part I. Chemical composition of the roots.* K. V. BOKIL AND K. S. NARGUND: *Synthesis in the chaulmoogric acid series. Part III. Synthesis of* dl-*hydnocarpic acid.* Synthesis of *dl*-hydnocarpic acid has been effected for the first time and described. V. V. NARLIKAR: *A classical limit of heavy homogeneous spherical masses.* TRIPURA CHARAN SARKAR: *The lead ratio of a crystal of monazite from the Gaya District, Bihar.* The pegmatites of Gaya may be considered as the last phase of igneous activity in post-Dharwar and pre-Cuddapah times.

SECTION B.—P. N. GANAPATI: *On a new myxosporidian* Henneguya otolithi *N. Sp. A tissue parasite from the bulbus arteriosus of two species of fish of the genus* Otolithus. L. S. S. KUMAR AND S. SOLOMON: *A list of hosts of some phanerogamic root-parasites attacking economic crops in India.* G. N. RANGASWAMY AYYANGAR AND B. W. X. PONNAIYA: *Studies in* Sorghum halepense (*Linn.*) *Pers—the Johnson grass.* M. A. BASIR: *Two new nematodes from an aquatic beetle.* L. S. S. KUMAR AND G. B. DEODIKAR: Commelina alisagarensis *Kumar and Deodikar: a new species from Hyderabad, Deccan, India.* SYED MUZAMMIL ALI: *Studies on the comparative anatomy of the tail in sauria and rhynchocephalia. I.* Sphenodon punctatus *Gray.* K. H. ALIKUNHI: *On a new species of* praegeria *occurring in the sandy beach, Madras.*