

## SCIENCE NOTES AND NEWS

**New Year Honours.**—The New Year Honours list contains the names of the following men of science:—

**Knighthood:** Dr. S. S. Bhatnagar, Director of Scientific and Industrial Research, Calcutta; Brevet-Colonel Ram Nath Chopra, I.M.S., Director, School of Tropical Medicine, Calcutta. **C.I.E.:** Mr. A. M. Livingstone, Agricultural Marketing Adviser to the Government of India; Mr. Lionel Fielden, lately Controller of Broadcasting, Government of India; Mr. H. G. Champion, I.F.S., lately Conservator of Forests, U.P. **C.B.E.:** Lt.-Col. C. A. Maclean, I.A.S., Cane Commissioner, Bihar, and Officer Commanding the Bihar Light Horse A.F. (I). **O.B.E.:** Mr. J. R. Haddow, Indian Veterinary Service, Veterinary Research Officer, Izatnagar; Prof. S. R. Moolgavkar, Professor of Surgery, Grant Medical College, J. J. Hospital, Bombay.

**The Hydrogen Bond.**—The September number of the *Transactions of the Faraday Society* (Vol. XXXVI, No. 233, 1940) reports a general discussion of the Society on the "Hydrogen Bond" held on 17th May 1940 under the presidency of Prof. E. K. Rideal, M.B.E., D.Sc., F.R.S. Six papers were submitted for the session and a large number of scientists took part in the subsequent discussion. Reporting on the Hydrogen Bond in Protein structure, Astbury pointed out that proteins depend for the proper exercise of their functions, or even for their very existence, on the presence of water, of which they take up large quantities. The water that proteins take up fall roughly into two classes—the loosely bound and the tightly bound; and it is the tightly bound water that is linked by co-ordinate or hydrogen bonds with the oxygen or nitrogen atoms in the carbonyl, hydroxyl, imino and amino groups of the structure. The loosely bound or "free" water is taken up by the intermicellar spaces. The "salt-like linkages" and the "back-bone linkages" are discussed; the intermolecular hydrogen bridges are observed to show a close similarity to the back-bone linkage of the extended fibrous proteins. The whole concept of polymerisation through oxygen-hydrogen-nitrogen bridges is concluded as being a generalisation of the familiar back-bone linkage. Bawn, Hirst and Young, in presenting their paper on the Nature of the Bonds in Starch, discussed the characteristics of the binding between the repeating units which go to make up the macromolecule of starch. Experimental evidence in regard to the properties of the starch molecule is shown to be inconsistent with those of a structure held together by hydrogen bonds. A consideration of the kinetics of the disaggregation of starch is shown to favour the hypothesis that the repeating units of starch are bound together by normal covalent bonds as found in, for instance, the disaccharides. Sutherland summarised the main results of infra-red investigations in the study of the hydrogen bonds both intermolecular and intramolecular. Following up the same sub-

ject, Fox and Martin discussed (1) the intermolecular bonding between alcohol (and phenol) molecules forming somewhat indefinite complexes; (2) the bonds between carboxylic acid molecules leading to dimers; and lastly (3) the intramolecular association or chelation in single molecules. They pointed out that the expression "energy of the hydrogen bond" has been used in the literature with different meanings by several authors and attempted to clear up this position. Robertson presented available X-ray evidence in the formation of intermolecular hydrogen bonds in organic crystals such as  $\alpha$ - and  $\beta$ -resorcinol, oxalic acid dihydrate, glycine, etc. Lastly Angus and Hill reported their investigations on the diamagnetic susceptibilities of substances capable of forming hydrogen bonds conducted in order to ascertain (a) if the formation of such bonds could be detected by magnetic measurements, and (b) whether any correlation is possible between the strength and nature of the bond and the magnetic data. These preliminary experiments seem to reveal that when formation of a hydrogen bond simultaneously involves ring formation, the susceptibility of the hydrogen-bonded structure is considerably less than the anticipated additive value and diminishes as the concentration of solute increases. On the other hand, when an "open" addition compound is formed by intermolecular hydrogen bonding between solute and solvent the susceptibility of the solute increases with solute concentration. In the discussion that followed Mrs. Lonsdale pointed out that any satisfactory study of the effect of hydrogen bonds on diamagnetism must take into account the three principal susceptibilities of molecules known to contain such bonds; at the Davy Faraday Laboratory she announced that work on these lines was already begun. The results of this investigation, which will be eagerly awaited, will be a most valuable contribution to our knowledge.

L. SIBALYA.

**Salt Accumulation in Soils and their Reclamation.**—The deterioration of soils newly brought under irrigation due to the rise of salts to the surface of the soil by irrigation and the formation of alkaline soils due to the seasonal movements of soil moisture during rainfall and irrigation have formed the subject of research in the Irrigation Research Institute, Punjab, and as the result precise numerical expression has been made possible to the degree of such deterioration especially in relation to the scope for profitable reclamation of these soils (E. Mackenzie-Taylor, *Indian Farming*, 1, No. 9). The conclusions are stated as follows:—If the salt content of the soil exceeds 0.5 per cent. and the alkalinity a pH value of 9.0 then successful crops of wheat and cotton cannot be grown and only a moderate crop of rice can be grown. Secondly, if the salt content exceeds 0.5 per cent. and the alkalinity is between 9.0 and 9.2 then simple leaching will render the soil fit for

rice. Thirdly, if the salt content exceeds 0.5 per cent. and the pH value lies between 9.2 and 9.5 then the land can be economically reclaimed but the first crop of rice will be low in yield. Fourthly, if the salt content exceeds 0.5 per cent. and the pH value exceeds 9.5 then economical reclamation is impossible. For the growing of cotton in this tract it is stated that within a zone six feet in depth from the surface no portion should contain more salt than 0.2 per cent. nor the pH value exceed 8.5 for maximum yields.

A. K. Y.

**Manurial Experiments on Bananas.**—Manurial experiments on bananas principally with a view to finding out if and to what extent potash fertilisers are advantageous which have run for a period of four years are reported by the N.S.W. Department of Agriculture, Australia (*Agricultural Gazette*, 51, Part 10). The experiments consisted of a trial of sulphate of potash at the rates of 21 lb., 41 lb. and 61 lb. per stool per year compared with no sulphate of potash. The treatments were randomised in the blocks and the blocks were repeated four times. All plots received a basal dressing of 1½ lb. of bone dust per stool per year. To test the effect of nitrogen two blocks received nitrate of soda as follows:—3 lb. per stool in the first year, 1½ lb. in the second year and ¾ lb. in the third and fourth years per stool.

The yield figures were studied statistically and it was found that the potash treatments produced no significant increases in the yield of marketable fruit in any year. There was, however, some evidence that potash increased the size of the fruit but the differences were not statistically significant.

**New Uses for Indian Vegetable Oils.**—Almost all the common Indian vegetable oils can be used satisfactorily as diesel engine fuel in place of mineral diesel oil, according to the Industrial Research Bureau's bulletin entitled "Indian Vegetable Oils as Fuels for Diesel Engines" which records the results of three years' investigations into the subject made at the Government Test House, Alipore, Calcutta. For this substitution, hardly any alterations are necessary to the ordinary diesel engines, and groundnut oil, cotton seed oil and rape seed oil gave the same smooth and trouble-free operation as the mineral oil. The behaviour of a number of other oils, including castor, coconut, til, mohua, kapok, karanji, punnal or undi and polang, has also been investigated. Although generally more expensive than the cheaper mineral oil, under certain circumstances they could find immediate application as engine fuels. For instance, in certain parts of the country where mineral oil is more expensive and vegetable oils are locally produced and comparatively cheaper, the latter may prove economical and useful. With the present slump in the oil export market, the prices of some of the vegetable oils have fallen. The present investigations indicate one way in which the oils can be utilized in this country, which is one of the largest producers of vegetable oils in the world. It was found that the power

reduction of the engine when using these vegetable oils was practically negligible and amounted to not more than about 2 to 3 per cent. This is significant in view of the much lower calorific value of the vegetable oils, as it indicates that the heat efficiency of vegetable oils is definitely higher than that of mineral oils when used in this way.

**Limestone and Marble in N.W.F.P.**—The North-West Frontier Province has an almost inexhaustible source of limestone and rich deposits of good quality white statuary marble and handsome banded marbles, according to Dr. A. L. Coulson of the Geological Survey of India, whose Professional Paper on the mineral resources of the Frontier Province and the directions in which they can be developed has just been published. Dr. Coulson is of opinion that the white marble found in the Province should be carefully conserved for ornamental statuary work and the more abundant coloured varieties should be used for ordinary building purposes. The mineral production of the Frontier Province is extremely small and consists almost entirely of salt, limestone, marble and road material. There is, however, abundant power available from the Malakand Hydro-Electric Scheme and Dr. Coulson recommends that every encouragement should be given to industrial enterprises wishing to take advantage of this power. The only known deposits of coal in the Frontier Province are in the Surghar range on the border of Kohat and Mianwali (Punjab) districts. Dr. Coulson thinks that encouragement should be given for the development of the deposits as soon as the results of the survey of the area are known. Abundant deposits of gypsum are found untouched in the Kohat and Dera Ismail Khan districts. Attention can profitably be directed, says Dr. Coulson, to the utilisation of this potential economic mineral.

**Shellac Floor Varnishes in America.**—It is estimated that some 12,000,000 lb. of shellac, mostly prepared from seedlac imported from British India, is consumed every year in the United States of America for the preparation of floor varnishes, according to a bulletin issued by the London Shellac Research Bureau. A dozen factories are busy all the year round bleaching the seedlac to get rid of the natural orange red colour of the material. In America, where wooden floors are in almost universal use, the best methods of polishing such surfaces with the minimum of work involved in daily cleaning and maintenance generally attracted considerable attention. The method which is now widely used is the application of spirit shellac solutions. These have resisted the competition of substitutes because of the cheapness of materials from which they are made (shellac and industrial alcohol), ease of application, durability, simplicity of renewal and care-free maintenance.

**War and Indian Coal.**—In view of the altered position in the Mediterranean many countries in the Middle East and Near East have now

turned to India for their supplies of coal. In recent months firm demands were received from the Sudan Railways for 16,000 tons and from Palestine (Haifa) for 20,000 tons. Further demands for 25,000 tons a month were received from Greece. Hong Kong asked for 5,000 tons and orders for 30,000 tons for Port Said, Malta, Aden and Egypt were placed with Indian firms direct by the British Shipping Controller, London. Demands were also received for hard coke and gas coke from Middle East and Palestine respectively.

**South Indian Epigraphy.**—The collection of 471 stone inscriptions, 13 copper-plate grants belonging to the several ancient South Indian dynasties and many objects of archæological interest is mentioned in the Annual Report on South Indian Epigraphy for 1936-37 just published. For this purpose 283 villages in the Madras Presidency and 153 in the Bombay-Karnatak were visited. Besides, 91 photographs of objects of archæological interest including certain rock-cut sculptures at Pillaiyarpatti and Kunnakkudi in the Ramnad District were obtained. A few sites containing pre-historic and proto-historic remains in the Tinnevely and Chittoor Districts were examined and burial urns and pottery were recovered.

In the South Arcot District some caverns with rock-cut beds known locally as the *Panchavarparai* were discovered. These are similar to those found in the Pandya country and attributed to the third century B.C. Of the inscriptions collected in the Madras Presidency, the earliest are four Brahmi records going back to about third century A.D., recovered from certain ancient Buddhist sites in the Guntur District. Two of these belong to the Ikshvaku Kings, Vira Prisadata and Ehuvala Chantamula, who ruled in the Krishna valley and who are responsible for the splendid Buddhist monuments of Nagarjunikonda. Two inscriptions recovered from Srirangam near Trichinopoly are of some general interest. One records the establishment by a Hoysala general of the thirteenth century A.D. of a dispensary as an annexe to the Ranganatha temple. The other mentions the consecration in the place of an image of Dhanvantari, the Aseulapius of the Hindus.

**Getting the Most from Teak Plantations.**—Information of use alike to the trade and to those interested in forestry is given in a compilation on yield of teak plantations, just brought out by the Forest Research Institute, Dehra Dun, in its *Indian Forest Records*. The present publication is the first attempt at a comprehensive yield table for teak plantations throughout India and Burma.

Teak is one of the most widely distributed and economically one of the most important timber species in India. Because of the high prices that teak timber fetches as compared with the timber of its other associates in the mixed deciduous forests of India and Burma, it has been planted more extensively than any other single species. The existing teak plantations are now estimated to cover an area of roughly 300 square miles, and about 10 square

miles are being added annually in India and Burma.

**Schemes for Civil Industries in India.**—The Government of India sanctioned more than Rs. 2,00,000 for various research schemes recommended by the Government virtually *in toto*. This grant was made for equipment for laboratories or small plants, and to cover remuneration for research workers. It was proposed to appoint for the time being two or three more research workers at the Alipore Laboratory which was to be expanded and provided with more equipment as occasion arose.

As a result of the efforts of the Indian Chemical Manufacturers' Association, Calcutta, the Government of India have decided to exempt Benzol used in the manufacture of medicinal preparations from excise duty. The Government of India levied an excise duty of annas 10 per gallon (subsequently increased to annas 12) on Benzol on the ground that it can be used as motor spirit as a substitute for petrol. The Association had pointed out to the Government that Benzol was used as a solvent in the manufacture of Alkaloid preparations but on account of the excise duty the Alkaloids prepared in India could not stand in competition with the imported Alkaloids in normal times. The step now taken by the Government of India would enable utilisation of large quantities of Benzol manufactured in coke oven plants which was till now going to waste. It would also give impetus to the manufacture of Alkaloid preparations in this country.

**Indians in Malaya.**—The Agent of the Government of India in Malaya in his Report for the year 1939 just published observes that rubber and tin—the two key industries of Malaya—mainly depend on immigrant labour. While the Chinese predominate in mines and factories, South Indians are employed in large numbers on rubber estates and public and Government departments mostly as unskilled labourers. At the end of 1939, the total Indian population in Malaya was nearly 745,000, forming 13·8 per cent. of the total population. About 80 per cent. of them are wage-earners engaged in some form or other of manual labour.

Despite the ban on assisted emigration to Malaya and the increase in rubber production quota which averaged 62·5 per cent. for 1939 as against 55 per cent. for 1938, there was ample supply of Indian and Chinese labour available locally to produce the full permissible quota of 75 per cent. during the last quarter of 1939. The average price of rubber, which went up to 11 to 12*d.* per lb. after the outbreak of war, was 9*d.* per lb. for 1939 as against  $7\frac{7}{8}$  *d.* for 1938.

Wage rates for Indian labourers on estates which remained at the reduced level of 45 cents a day for men and 35 cents a day for women during the first three quarters of 1939, rose to 50 and 40 cents respectively with effect from October 1, 1939. Daily and monthly paid labourers and workers employed under the public authorities were granted by S.S. and

F.M.S. Governments a cost of living allowance ranging from \$1 to \$2 per month.

**University of Mysore.**—A meeting of the Academic Council was held on the 21st December 1940. Among the propositions that were passed, mention may be made of the following:—(1) Extension of the duration of the L.M.P. Diploma Course from 4 to 5 years. (2) Revision of the Course of Study for the B.A. Honours Preliminary Examination for the Social Philosophy Branch. (3) Revision of the detailed course of study in Psychology for the B.A. Honours Degree Examination. (4) Scheme of Examination in Urdu for the B.A. Honours Degree Examination. (5) Addition of Urdu to the list of subjects that may be offered for the Degree of Master of Arts. (6) Ordinance respecting the institution of the Master's Degree in Engineering. (7) Ordinances relating to the institution of the Doctorate, viz., D.Litt., D.Sc., D.E., and D.Sc. (Anatomy, Physiology).

The All-India Economic Association and the All-India Political Science Association which were invited by this University to hold their Conferences at Mysore this year, met during the month. The Joint Conference of the two Associations was opened on the 28th December 1940, by His Highness the Maharaja of Mysore.

**University of Calcutta.**—Mr. Phanindrachandra Dutta is admitted to the D.Sc. degree, in consideration of his thesis on "Studies in the Sesquiterpene Series and Studies in the Cyclopentane Series".

Messrs. Phanindranath Brahmachari, Sunilkrishna Datta and Krishnadhan Chatterjee have been admitted to the M.D. degree on the basis of an examination.

Srimati Bibha Majumdar, the holder of Premchand Roychand Studentship in Science, will be awarded a Mouat Medal at the forthcoming Convocation of the University.

**Indian Science Congress.**—At the annual meeting of the General Committee of the Indian Science Congress Association held in Benares on January 6, Mr. D. N. Wadia, Mineralogist, Ceylon Government, was elected President for the 29th Session of the Indian Science Congress, which will be held at Dacca under the auspices of the University of Dacca from the 2nd to the 8th January 1942.

The following were elected Presidents for the different sections:—

**Mathematics and Statistics:** Prof. P. C. Mahalanobis, Professor of Physics, Presidency College, Calcutta.

**Physics:** Prof. B. B. Ray, Khaira Professor of Physics, Calcutta University.

**Chemistry:** Dr. M. Qureshi, Head of the Department of Chemistry, Osmania University, Hyderabad, Deccan.

**Geology:** Dr. Raj Nath, Head of the Department of Geology, Benares Hindu University, Benares.

**Geography and Geodesy:** Mr. George Kuriyan, Head of the Department of Geography, Madras University, Madras.

**Botany:** Dr. N. L. Bor, Forest Botanist, Forest Research Institute, Dehra Dun.

**Zoology:** Dr. H. S. Rao, Assistant Superintendent, Zoological Survey of India, Indian Museum, Calcutta.

**Entomology:** Dr. D. Mukerji, Zoological Laboratory, University of Calcutta, Calcutta.

**Anthropology:** Dr. M. H. Krishna, Professor of History and Director of Archæological Research, Maharaja's College, Mysore.

**Medical and Veterinary Research:** Dr. C. G. Pandit, King Institute, Guindy, Madras.

**Agriculture:** Dr. Nazir Ahmed, Director, Cotton Technological Laboratory, Matunga, Bombay.

**Physiology:** Prof. B. T. Krishnan, Professor and Head of the Department of Physiology, Medical College, Calcutta.

**Psychology and Educational Science:** Dr. G. Pal, Department of Psychology, Calcutta University, Calcutta.

**Engineering:** Mr. H. P. Philpot, Principal, Engineering College, Benares Hindu University, Benares.

At the Annual Meeting of the Indian Academy of Sciences, held at Waltair, in December 1940, the following were elected Office-bearers and members of the Council for the period 1940-43:—

**President:** Rajasabhabhushana Sir C. V. Raman. **Vice-Presidents:** (1) Lt.-Col. S. L. Bhatia, (2) Prof. K. S. Krishnan, (3) Rajasevasakta Dr. B. K. Narayan Rao and (4) Prof. Birbal Sahni. **Secretary for Section A:** Prof. B. S. Madhava Rao. **Secretary for Section B:** Prof. A. Subba Rao. **Treasurer:** Prof. B. Sanjiva Rao. **Members of Council:** (1) Dr. Nazir Ahmed, (2) Dr. S. K. Banerji, (3) Prof. S. Bhagavantam, (4) Prof. Y. Bharadwaja, (5) Prof. D. R. Bhattacharya, (6) Prof. R. Gopala Aiyar, (7) Dr. E. McKenzie Taylor, (8) Prof. S. Ramachandra Rao, (9) Dr. K. R. Ramanathan, (10) Mr. B. Rama Rao, (11) Prof. L. Rama Rao, (12) Prof. M. A. Sampathkumaran, (13) Prof. B. K. Singh, (14) Shastravaidyapravina Dr. S. Subba Rao and (11) Prof. A. V. Telang.

Sir C. V. Raman has been elected an Honorary Fellow of the Optical Society of America in recognition of his eminent services to the Science of Optics.

**Indian Institute of Science, Bangalore.**—The Government of His Exalted Highness the Nizam of Hyderabad have enhanced the annual grant to the Indian Institute of Science, from Rs. 2,000 to Rs. 10,000.

#### SEISMOLOGICAL NOTES

**December 1940.**—During the month one moderate and seven slight earthquake shocks were recorded by the Colaba seismographs as against two great and four slight ones recorded during the same month in 1939. Details for December 1940 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 |
|------------|------------------------|-------------------------|---------------------------------|--|----------------|---------|
| 1940       |                        | H. M.                   | (Miles)                         |  | (Miles)        |         |
| December 4 | Slight                 | 18 39                   | 4490                            |  |                |         |
| 9          | Slight                 | 11 40                   | 3380                            |  |                |         |
| 16         | Slight                 | 15 13                   | 2350                            |  |                |         |
| 17         | Slight                 | 20 12                   | 4600                            |  |                |         |
| 18         | Slight                 | 11 02                   | 4270                            |  |                |         |
| 19         | Slight                 | 21 19                   | 3030                            |  |                |         |
| 26         | Slight                 | 04 37                   | 1220                            |  |                |         |
| 28         | Moderate               | 22 08                   | 4750                            | Near 18° N., 146° E.,<br>in the vicinity of<br>Marianne Islands in<br>the Pacific. |                |         |

### MAGNETIC NOTES

December 1940.—Magnetic conditions during the month were slightly less disturbed than those during the preceding month. There were 6 quiet days, 22 days of slight disturbance, and 3 of moderate disturbance as against 10 quiet days, 18 days of slight disturbance and 3 of moderate disturbance during December 1939.

The most disturbed day during the month was the 30th when a magnetic storm of moderate intensity was recorded. The day of least disturbance was the 6th. Characters of individual days are shown in the following table:—

| Quiet days      | Disturbed days             |            |
|-----------------|----------------------------|------------|
|                 | Slight                     | Moderate   |
| 6-8, 18, 19, 24 | 1-5, 9-17, 21-23,<br>25-29 | 20, 30, 31 |

There was one moderate magnetic storm during the month of December 1940 as against a moderate storm recorded during December 1939. The mean character figure for the month of December 1940 is 0.90, while that for the same period of 1939 was 0.77.

M. R. RANGASWAMI.

### ASTRONOMICAL NOTES

Planets during February 1941.—Mercury will be visible as an evening star in the beginning of the month; it reaches greatest elongation (18° 10' E.) on February 11 and will be stationary on February 17. After inferior conjunction with the Sun on February 21, the planet passes into the morning sky. Venus continues to get closer to the Sun and is visible as a morning star for a short while before sunrise. Mars

which is still faint, is moving eastward in the southern part of Ophiuchus and will be in the constellation Sagittarius at the end of the month.

Jupiter and Saturn have both resumed their eastward motion among the stars, and continue to be conspicuous objects in the western sky in the early part of the night. The former which is moving faster, will overtake the other on February 21, when there will occur a close conjunction of the two planets, the apparent distance at the time being about a degree and a third. There will also be a close approach of the Moon to Saturn on February 3. Uranus will be found in the western border of Taurus about seven degrees to the south-west of the star cluster Pleiades.

T. P. B.

### ANNOUNCEMENTS

**Lady Tata Memorial Trust.**—Applications are invited for Six Scientific Research Scholarships of the value of Rs. 150 per month each for the year 1941-42.

The Scholarships are open to men and women, and will be tenable for a period of twelve months commencing from the 1st July 1941. Any or all the Scholarships may be extended for a further period of twelve months, within the discretion of the Trustees. All old scholars who desire renewal should re-apply.

Applicants, who must be of Indian nationality, must be Graduates in Medicine or Science of a recognised University. They must undertake to work whole time and will be debarred from private practice. In the duration of the period of his scholarship or award the recipient of the benefit shall devote himself to the work before him to the entire satisfaction of the Trustees, who reserve the right to withhold payment on the recommendation of the Advisory Committee.

The subject of scientific investigation which they may select must have a bearing directly

or indirectly on the alleviation of human suffering by disease.

Applications must be forwarded through the Director of a recognised Research Institute or Laboratory where the candidate proposes to work and must be accompanied by a letter from the Director stating that he has critically examined the details of the proposed Research, that he approves of the general plan and that he is willing, as far as possible, to guide and direct the investigation and give laboratory facilities.

Applicants must give (a) a short resume on the subject indicating present state of knowledge and (b) details of the proposed research indicating (i) the methods intended to be employed, (ii) previous experience in the use of these methods and (iii) the experiments to be carried out.

Applications, which must be typed, must give full particulars in the order indicated above and must be addressed to the Secretary, THE LADY TATA MEMORIAL TRUST, BOMBAY HOUSE, BRUCE STREET, FORT, BOMBAY, so as to reach him not later than 15th March 1941.

**Forthcoming Publications.**—*Temperature, Its Measurement and Control in Science and Industry* (Reinhold Publishing Corporation, New York). This volume consists of about 125 papers presented at a symposium held at New York in November 1939, under the joint auspices of *The American Institute of Physics, The National Bureau of Standards, The National Research Council*, and 12 Scientific and Technical societies. About 1,300 pages and 550 illustrations. Listed price \$11.00.

*Scripta Mathematica* takes pleasure in announcing a facsimile reprint of the 1842–1845 edition of Peacock's *Treatise on Algebra* in two volumes. Published at the suggestion and with the collaboration of St. John's College, Annapolis, Md. in two beautifully bound, silver-stamped volumes (Vol. I, xvi + 399 pp.; Vol. 2, x + 455 pp.).

This work, adopted as a text by St. John's College, is invaluable for every teacher of the subject. It is a "must" addition to all libraries not now in possession of the rare, original issue which has been out of print for many years.

**Radio in Upper Air Investigation**—(a correction).—The author regrets that an error has crept in the arithmetical calculations carried out on page 562, column 1, lines 13 to 26 in a paper of the above title published in *Current Science*, 9, No. 12, of December 1940. Those lines should be replaced by the following:—

"Therefore, the power radiated will be 0.889 mw. Assuming 40% efficiency for the transmitter, the d.c. input works out to be 2.22 mw. Assuming 10% efficiency, it will be 8.89 mw. Taking the ohmic loss of power in the aerial, the lowering of battery voltage due to drain and lowering of temperature, etc., it is clear that a 45-V plate supply capable of delivering a few milliamperes is quite adequate. Actually satisfactory signals have been received with a 45-V plate supply."

We acknowledge with thanks the receipt of the following:—

"Journal of the Royal Society of Arts," Vol. 88, Nos. 4570–73.

"Agricultural Gazette of New South Wales," Vol. 51, Pts. 11 and 12.

"The Nagpur Agricultural College Magazine," Vol. 15, No. 2.

"Biochemical Journal," Vol. 34, Nos. 8 and 9.

"Journal of the Institute of Brewing," Vol. 46, Nos. 3, 10 and 11.

"Journal of the Indian Botanical Society," Vol. 19, Nos. 4–6.

"Contributions from Boyce-Thompson Institute," Vol. 11, No. 5.

"Journal of Chemical Physics," Vol. 8, Nos. 10 and 11.

"Journal of the Indian Chemical Society," Vol. 17, No. 9.

"Indian Forest Records," Vol. 4A, No. 1, Silviculture.

"Transactions of the Faraday Society," Vol. 36, No. 234.

"Indian Farming," Vol. 1, No. 12.

"Health Bulletin," No. 11, Malaria Bureau.

"Bulletin of the Indian Central Jute Committee," Vol. 3, No. 9.

"Proceedings of Royal Irish Academy," Vol. 46A, 4–8 and Vol. 46B, 4 and 5.

"Review of Applied Mycology," Vol. 19, No. 10.

"Bulletin of the American Meteorological Society," Vol. 21, Nos. 7 and 8.

"Indian Medical Gazette," Vol. 75, No. 12.

"Journal of the Bombay Natural History Society," Vol. 42, No. 1.

"Journal of Nutrition," Vol. 20, No. 5.

"Journal of the American Museum of Natural History," Vol. 46, No. 4.

"Nature," Vol. 146, Nos. 3698–3702 and 3704–06.

"Journal of the Osmania University," Vol. 7, 1939 and Vol. 8, 1940.

"Indian Journal of Physics," Vol. 14, Pt. 4 (August 1940).

"Proceedings of the Royal Society of Edinburgh," Vol. 60, Pts. 2 and 3.

"Journal of Research," National Bureau of Standards, Vol. 25, No. 2.

"Canadian Journal of Research," Vol. 18, No. 9 (A.B.C.D.).

"Sky," Vol. 5, Nos. 1 and 2.

"Science and Culture," Vol. 6, No. 7.

"Indian Trade Journal," Vol. 139, Nos. 1799–1801 and Vol. 140, Nos. 1802–03.

#### BOOKS

1. "Catalysis, Inorganic and Organic," by Sophia Berkman, Jacque C. Morell and Gustav Egloff. (Reinhold Pub. Corpn., N.Y.; Chapman & Hall, Ltd., London).

2. "Practical Solution of Torsional Vibration Problems," second edition, Vol. 1, by W. Ker Wilson. (Chapman & Hall, Ltd., London).

#### CATALOGUES

Cambridge University Press, Autumn 1940, List of Books.

Edward Arnold & Co., Scientific & Technical Books, September 1940.