

SCIENCE NOTES.

Length Regularity and Percentage of Short Fibres in Cotton—Sometime ago a new Stapling Apparatus was designed at the Indian Central Cotton Committee Technological Laboratory with which it is possible to determine the mean length and the fibre weight per inch (which measures the fineness of staple) of a cotton accurately and quickly. A full account of this apparatus was published in the *Journal of the Textile Institute*, Manchester. The apparatus is now used in several mofussil stations in India. This apparatus did not yield information regarding the proportion of fibres of different lengths present in a sample of cotton. In certain operations a knowledge of this feature of cotton is important both to the practical spinner and the research worker. In order to overcome this limitation a new attachment has been designed by Messrs Ahmad and Nanjundayya—the designers of the Stapling Apparatus—which can be fitted to the Stapling Apparatus and by means of which it is possible to determine the proportion of fibres of different lengths in a sample of cotton. It is also possible with this device to determine quickly the percentage of fibres shorter than a prescribed limit present in a sample. Both these determinations can be carried out quickly and smoothly and tests at the Laboratory have shown that the attachment gives consistent results which agrees well with other standard methods. A full account of it will be published in due course.

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Quality of Indian Cotton—An important press communique issued recently by the Central Cotton Committee deals with the question of quality of Indian Cottons. Three charges are frequently levelled against Indian cotton, it is said that owing to the tendency on the part of exporters to mix staples and varieties, the Indian cotton cannot be obtained with its pure and natural qualities. It is also reported that shipments of Indian cotton are not uniform and even running. The third complaint often made is about the so called false packing.

The actual position is totally different. The introduction by the Government, of the Cotton Transport Act of 1923, and the Cotton Ginning and Pressing Factories Act of 1925, which made breaches of the regulation punishable under Law, has checked all malpractices, such as watering the cotton or mixing with inferior qualities. The result is that to day, India can hold its own in the world's market as regards purity and quality.

India occupies a prominent place among countries producing cotton of various staples and standards of cleanliness from $1\frac{1}{2}$ staple to very nearly the shortest staple produced anywhere. One of the best instances is the growth of Punjab American Cotton in Punjab and Sind. These provinces produce long staple 289 F cotton with a staple length of $1\frac{1}{2}$ " 4 F cotton with a staple length of $\frac{3}{4}$ " and Deshi Cotton with a length of $\frac{1}{2}$ ".

As regards shipments the uniformity of shipment depends upon the shipper. There are firms in Bombay enjoying excellent reputation for decades for uniform shipments. With regard to the third charge of false packing,

they are few and negligible. In fact the question of false packing is more in evidence in some of the varieties of cotton imported into India, particularly cotton from America.

Sir Purushotamdas Thakurdas, in the course of an article on the 'Real situation in India' published in the International Edition of *Cotton Trade Journal*, 1937, says with the extension of cultivation of staple varieties in India especially in the Sukkur Barrage area in Sind the possibility of India's supplying long staple clean cotton, will increase from year to year. Already there are signs that the supply of such cotton exceeds the demand so that India will soon be in a position to meet, to some extent the requirements of the world for cotton of a staple length of about $15/16$ " to 1".

Various parts of the world also require fair and short staple cotton and supplies of this are not likely to decrease, as with, steady prices for cotton the acreage under cotton in India need not diminish. In fact, India holds a predominant position in the world as an exporter of short and fair staple cotton to the tune of 2,000,000 to 2,500,000 bales, and, given fair trade and reasonable prices, she is capable of retaining it for many years to come.

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Indian Central Cotton Committee—The 33rd Half yearly Meeting of the Committee was held in Bombay on the 9th and 10th August. Mr N C Mehta the acting Vice Chairman of the Imperial Council of Agricultural Research, presiding. In the course of his presidential address, Mr Mehta made three important suggestions namely, the reorganisation of Statistical Service, a systematic survey of the marketing organisation of Cotton from the raw product to the finished cloth and an effective organisation with the assistance of trade associations for enhancing the consumption of Indian cotton in India and abroad. The collection through members of the Committee visiting Europe and other countries, of specific information desired, was also suggested by the President.

The Committee had on its agenda as many as 87 subjects, the more important of them being, progress reports of the botanical mycological entomological physiological, cotton survey seed distribution, technological and propaganda schemes. A new research scheme for cotton jassid investigation in Sind was also considered. The Progress Report of the Director Technological Laboratory, Matunga, showed the completion of several investigations carried out at the laboratory, viz the effect of twist in the length and strength of cotton fibre the effect of weather on the fibre properties, and spinning quality of standard Indian cotton and on the deterioration of Broach cotton caused by bacteria and fungi and identification of the latter.

The Committee has taken the initiative to fulfil the long felt need of the Industry of starting a testing house which will be housed at its laboratory in the first instance, where tests on samples of cotton, yarn and cloth will be carried out under standard conditions on payment of certain fees. The Committee has sanctioned

Rs 6,000 for the purchase of necessary equipment, and certain tests of chemical character will be carried out at the Department of Chemical Technology of the University of Bombay

The Committee considered suggestions relating to the revision of standard yield figures of cotton in the Bombay Presidency and Sind and decided to request Prof Mahalanobis and Dr Fisher to give further guidance on the subject

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Industrial Research Bureau—The two Bulletins issued by the Indian Industrial Research Bureau on the 'Manufacture of Photographic Plates in India' and on 'Improved Reflex copying' by Mr N Kasinathan place before the public a record of Research work of great practical importance undertaken in the Physics Laboratories of the Presidency College, Madras. The first of these theses gives a lucid account of the difficulties of the pioneer in the field, and of the choice of materials and the processes involved in the highly technical and advanced branch of the manufacture of photographic plates. The second Bulletin details a simple and satisfactory method for reflex copying of still objects and drawings. These publications will, no doubt, stimulate interest in the subject and be of immense help to those who are engaged in the development of photograph industry in India.

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Indian Chemical Society—An ordinary meeting of the Society was held on Friday, the 23rd July, at the University College of Science, Calcutta, Prof J N Mukherjee presiding.

The Chairman referred to the loss sustained by the Society through the death of Prof Panna Lal of Science College, Patna. A condolence resolution was passed, the Fellows standing.

The Chairman presented the Sir P C Ray 70th Birthday Commemoration Medal to Dr P B SARKAR, who was considered to be the best candidate by the Board of Examiners appointed by the Council.

The following were admitted as Fellows—(1) Mr Charles H Shurtchiff (Ishapore), (2) Dr Tarapada Banerjee (Dacca), (3) Mr B R Chaudhury (Poona), (4) Prof Andre Girardet (Lausanne), (5) Dr S V Anantakrishnan (Calcutta) and (6) Mr M G Kale (Bombay).

Dr P B Sarkar delivered a lecture on 'The present state of our knowledge of lignin'.

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The Madras Library Association—We have before us the interesting Ninth Annual Report of the Madras Library Association for the period from the 1st February 1936 to the 31st January 1937. Although the number of ordinary members has decreased, there seems to be considerable progress in the Library Movement. Mrs Sresty paid a sum of Rs 3,000 to improve the finances of the library. Saraswata Niketanam, Vetapalem, and also gave a donation of three acres of wet land worth about Rs 2,000. Mr S Chattanatha Karayalar, M.A., B.L., M.I.A., made a generous gift of Rs 5,000 to the Public Library Society of Tinnevely. The Summer School of Library Service continued to be conducted by the University of Madras, and eighteen persons obtained the University Certificate in Librarianship.

Forty five public meetings were held during the year. The Council has inaugurated a praise worthy scheme of fostering in the school children the habit of reading.

Hundred popular lectures on various topics were delivered during the last 5 years and some of the lectures are available for free distribution.

In 1936, 119 libraries furnished library returns. The travelling library at Mannargudi founded by the late Rao Sahib S V Kanakasabai Pillai in 1931 is doing very useful work in this area. The West Tanjore District Board has started rural library work and is running a library van. Rural libraries have been started in other localities also.

The Hospital Library Service in the City of Madras is doing very useful work. Similar services have been established at Madura, Cuddalore and Pudukottah.

Christmas vacation lectures on school libraries were held by the Librarian Madras University Library in the year under report.

The Association has published till now 5 books which will be of immense use to librarians.

It is gratifying to note that the Government of Madras has made a provision of Rs 10,000 in the budget estimate for 1936-37 for non panchayat libraries.

There are 26 Annexures to the report which contain much useful information.

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The National Geographic Society—Smithsonian Institution Wild Animal Collecting Expedition—As has already been announced (*Curr Sci* 1927, 5, 460) Dr Mann, the leader of the Expedition and his assistants aided by local scientists and animal collectors have been scouring the tropical islands of the Netherlands East Indies, for strange and rare wild animals, birds and reptiles many of which have never so far been exhibited in the United States. These creatures are being collected for the National Zoological Park Washington. Among the menagerie of strange creatures, which the Expedition has collected so far are several Maleos, birds half as large as chickens but which lay eggs with ten times the volume of hens eggs (about 2½ times the diameter). The huge eggs are covered by mounds of earth and vegetable debris and left to hatch. When the young Maleos emerge they are all ready to fly and take care of themselves. The Expedition has also collected three kangaroos, wild pigs, a pair of pygmy buffaloes, a dozen beautiful birds of paradise of four different species, many monkeys and several pythons, huge snakes which squeeze their prey to death, cassowaries, large ostrich like birds, several specimens of the cuscus, an animal with a prehensile tail like a possum, parrots, lizards, snakes, and pigeons.

The Expedition plans to collect more animals on the west coast of Sumatra, and in Siam before returning home.

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Mr M W Sayer, I.A.S., Imperial Agriculturist and Joint Director Imperial Agricultural Research Institute, New Delhi, is granted leave on average pay for four months and twenty eight days combined with leave on half average pay for 10 days with effect from the 28th May 1937.

From the same date —(1) Dr H S Pruthi, Imperial Entomologist, is appointed to officiate as Joint Director, Imperial Agricultural Research Institute, New Delhi, in addition to his own duties

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Sugarcane Research Station, Shahjahanpur —Rai Bahadur R L Sethi, Economic Botanist to Government of U P, having been deputed with the Government of India as Assistant Agricultural Expert to the Imperial Council of Agricultural Research, the Government of U P have approved temporarily the appointment of Dr R N Mathur M Sc, Ph D, Sugarcane Physiologist, to the post

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Royal Institute of Science.—Dr Mata Prasad delivered the inaugural address of the Central College Chemical Society, Bangalore, on the 30th June

Dr G V Jadhav, who was on leave in England, returned to resume his duties in the Chemistry Department, after taking the Ph D degree of the Manchester University. He has also been elected an Associate of the Institute of Chemistry.

Mr S S Dharmatti M Sc, a research student has been elected an Associate Member of the Institute of Physics

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Indian Science Congress Association —The following scientists have recently accepted the invitation to come to India for the Jubilee Session —Prof G Barger FRS Professor of Chemistry University of Edinburgh Sir Lewis Fermor, FRS Late Director Geological Survey of India, Prof J Hendrick Professor of Agriculture, University of Aberdeen Dr J D Stamp, Reader in Economic Geography University of London Dr A E H Tutton, FRS, Past President Mineralogical Society Prof N Bohr Professor of Physics, Institute for Theoretical Physics, Copenhagen, Prof J C Jung Professor of Psychology, University of Zurich

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Stereoscopic Mapping with Multiplex Projector —A 25 square mile tract can be 'picked up' from an airplane and set down on a table top in three dimensions by means of an instrument known as a multiplex projector now being built by Bausch & Lomb Optical Co, for the U S Army Air Corps

The device makes the user feel precisely as though he were a superbeing standing over the earth and able to caress the tops of mountains and run his hand along the bottoms of great gorges. So perfect is the reproduction that a giant smoke stack looks realistic enough to pick a finger even at 2000 times reduction.

The method involves no actual model making with tools. A complete representation of a countryside can be obtained in a field station within a few hours after the exploring plane takes off.

"Hitherto made only abroad, this costly precision device is now being built in the laboratories of Bausch & Lomb to meet War Department requirements and for general map making purposes. Aside from its value in preparing for military operations in unfamiliar terrain, it is said to be the most convenient

and rapid means for accurate map making available

"By simple measurement with a scale in the reduced model one can measure the height of a hummock or the slope of a road as easily as one can measure the height of an inkstand on a desk

"A plane working in conjunction with the aero projector begins operations over an area containing three points accurately surveyed by traditional methods. As it flies out into unmapped territory, the shutter of an automatic camera looking down clicks at regular intervals.

"The film is then developed and printed on small glass plates which are used as lantern slides in a battery of projectors mounted above a table. The images formed by adjacent projectors on the table overlap just as do the areas covered in successive photographs. Alternate projectors form their images in red and green light. The user wearing spectacles with one lens red and the other green, sees the overlapped area stereoscopically. He gets the same impression of depth as though he were a giant so huge that his eyes were set apart by the distance the plane flew between successive pictures.

"The scene does not look natural, however, until the orientations and positions of the battery of projectors reproduce exactly the relative orientations and positions of the taking camera.

A number of operators can work simultaneously drawing relief maps under one battery of projectors. The whole system of images appears a meaningless jumble of red and green light and shadow to a person not wearing the colour spectacles.

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Edwards Vacuum Pipe Line Installations —We have recently received from Messrs Edwards & Company a copy of their latest leaflet, giving details regarding installation upkeep performance etc, of the vacuum pipe line. In the use of vacuum processes in chemical, biological and physical work the water ejectors systems are the only ones generally considered, and as the many advantages of the electrically operated vacuum line are not widely appreciated the pamphlet seeks to give a comparative idea of the chief characteristics of the two systems.

The general scheme of the vacuum line installation is a central pump unit serving a pipe line to which can be fixed a number of vacuum cocks. In chemical and physical laboratories and works, where distillations filtrations, drying, impregnations and analytical operations are done on a bigger than individual scale, this system will have a special appeal. There is little doubt that this system will supersede in the near future the water pumps.

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Announcements

Woodhouse Memorial Prize —In memory of Mr F J Woodhouse late Economic Botanist and Principal of Sabour Agricultural College, who was killed in action in France in 1917 a biennial prize in the form of a Silver Medal and Books of a combined value of Rs 100 will be awarded to the writer of the best essay on a subject to be selected from the list noted below

The length of the essay should not exceed 4,000 words

- 1 Hybrid vigour in plants and its significance in plant breeding and agriculture
- 2 Agricultural problems of the Indian Sugar Industry and their solution
- 3 The importance of purity and quality of seeds of farm crops and how to prevent their deterioration

The competition is open to graduates of Indian Universities and to Diploma holders and Licentiates of recognized Agricultural Colleges in India who are not more than 30 years of age on the date of submission of their essays

Papers should be forwarded to the Director of Agriculture, Bihar, Patna, before the 30th November 1937

Failing papers of sufficient merit no award will be made Essays must be typewritten on one side of paper only

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The Maharaja of Kalahandi having very kindly invited a party of botanists to make a survey of the flora of his State an expedition composed of not more than 15 members will be conducted under the auspices of the Indian Botanical Society from December 15th to December 25th Further details can be obtained from Prof P Parija Ravenshaw College Cuttack (Orissa), who will lead the expedition

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Indian Science Congress Association—In addition to the discussions announced in our last issue, the following have been arranged

Section of Zoology—The place of systematics and morphology in the study of the living animal

Sections of Medical Research Veterinary Research and Physiology—Animals and their diseases in relation to man

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We acknowledge with thanks, receipt of the following —

'Agricultural Gazette of New South Wales,' Vol 48, No 9

'Journal of Agricultural Research,' Vol 54, Nos 8 11

'Monthly Bulletin of Agricultural Science and Practice' Vol 28, No 7

'Journal of Agriculture and Live Stock in India,' Vol 7, Part 4

'The Philippine Agriculturist,' Vol 26, No 2

'Allahabad Farmer,' Vol 11, Nos 3-4

'Journal of the Royal Society of Arts,' Nos 4413-4417

'Biochemical Journal,' Vol 31, No 5

'Biological Reviews,' Vol 12, No 3

'Journal of the Indian Botanical Society,' Vol 16, No 4

'Chemical Age,' Vol 36, Nos 938-940, Vol 37 Nos 941-42

'Journal of Chemical Physics,' Vol 5, No 7

'Journal of the Indian Chemical Society,' Vol 14 No 5

'Berichte der Deutschen Gessellschaft,' Vol 70, Nos 7 and 4

'Experiment Station Record,' (U S A) Vol 76, No 6, Vol 77, No 1

'Transactions of the Faraday Society,' Vol 33, No 195

'Indian Forester,' Vol 63, Nos 7-8

'Forschungen und Fortschritte,' Vol 13, Nos 18 13

'Genetics' Vol 22, No 4

'Journal of the Geological, Mining and Metallurgical Society of India,' Vol 8, Nos 3-4

'Indian Trade Journal,' Vol 125, Nos 1620 24

'Quarterly Bulletin of Health Organisation, (League of Nations)' Vol 6, No 2

'Medico Surgical Suggestions,' Vol 6, No 7

'The Calcutta Medical Journal,' Vol 32, No 7

'Review of Applied Mycology,' Vol 16, No 7

'Nature,' Vol 139, Nos 3529-30, Vol 140, Nos 3531-33

'Journal of Nutrition,' Vol 13, No 6, Vol 14 No 1

'Indian Journal of Physics,' Vol 11, No 3

'Research and Progress,' Vol 3 No 4

'Canadian Journal of Research,' Vol 15, No 6

'Journal of Research (National Bureau of Standards),' Vol 18, No 4

'Science and Culture' Vol 3, No 1

'Sky' Vol 1, Nos 8-9

'Langnan Science Journal,' Vol 16, No 2

'Science Progress,' Vol 32, No 125

'Indian Journal of Veterinary Science and Animal Husbandry,' Vol 7, Part 2

ACADEMIES AND SOCIETIES.

The Indian Academy of Sciences

July 1937 SECTION A—S L MALURKAR *On a Method of Solving Linear Differential Equations in Series* S Z AHMAD AND R D DESAI *Heterocyclic Compounds Part III—The synthesis of Cyclopenteno (1 2 2 3) —Chromones and a Discussion of the Mechanism of the Pechmann and the Simons Reactions* K NEEIAKANTAN AND T R SESHADRI *Constitution of Gossypitrin An Attempt to Define the Position of the Glucose Residue*—The methylation with diazomethane was not complete K SUBBA RAO AND B SANJIVA RAO *Studies*

in Adsorption on Gels II—A Comparative Study of the Capillary Spaces in Gels of Silica and Alumina—A micro spring balance of quartz fibre is used It is found that the capillaries in chalky gels are wider than those in glassy gels K S GURURAJA DOSS *Inhibition of Fluorescence*—Inhibition by ions such as Cl, Br, I can be interpreted on the basis of collisions of the second kind N VENKATANARASIMHACHAR AND K S GURURAJA DOSS *Selective Adsorption on Silica Gel from Pyridine Alcohol Mixtures*—An adsorption compound $C_5H_5N \cdot 2EtOH$ is formed at the interface K SUBBARAMIAH AND B SANJIVA RAO *Physico Chemical Investi*