

SCIENCE NOTES.

Chemical Investigation of the Seeds of *Swietenia Mahagoni*.—Dr. S. V. Shaw and Mr. D. G. Pishawikar, Department of Chemistry, Rajaram College, Kolhapur, write under date September 25, 1938 :—

The fruits for this investigation were obtained from a few trees planted in the local Town Hall gardens. The tree growing to a height of 45 feet appears to be *Swietenia Mahagoni* which is not indigenous to India but is stated to grow abundantly in West Indies and Central America. Each fruit yields 55–60 seeds which are winged at the top and brown in colour. The upper soft fleshy cover of the seeds was removed and the seeds were extracted with petroleum ether. A white substance observed in the petrol solution remained dissolved in the oil after removal of the petroleum ether and the *yellow oil* obtained had an unpleasant and bitter taste. The table below gives the analytical data for the oil side by side with the values quoted by Lewkowitsch and Warburton (*Chemical Technology and Analysis of Oils. Fats and Waxes*, 1922, 2, 147) for a sample received at the Imperial Institute from Barbados. The latter is described to be a *dark greenish oil* having an unpleasant bitter taste and exhibiting weak drying properties.

	Authors	Lewkowitsch
Yield (calc. on weight of seeds)	50 per cent.	
$d^{27.5}$	0.9179	$d^{15.5}$ 0.935
n^{25}	1.4720	
Acid value	1.25	13.0
Saponification value ..	201.3	193.3
Acetyl value	21.8	
Reichert-Meisel value ..	2.30	1.9
Polenski number	0.35	
Iodine value	94.4	125.0
Unsaponifiable matter ..	1.8	
Titre test	30.5

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Fungi of India.—A supplement to Butler and Bisby's *Fungi of India*, recording more than 500 new fungi which have been discovered and described since 1930 by mycological workers in India, has recently been issued (B. B. Mundkur : Scientific Monograph No. 12, The Imperial Council of Agricultural Research ; Manager of Publications, New Delhi, 1938 ; Pp. 54 ; Price Re. 1-6-0 or 2s. 3d.). There has been an increasing amount of activity in this field, thanks to the participation of many of the Indian Universi-

ties. Dr. Mundkur's book is a valuable record of reference whose usefulness would have been greatly enhanced if it had been possible to mention the source of supply for each of the cultures recorded.

Fungi have great economic importance and the potentialities of their employment in industry have not been explored in India. It is imperative that a National Collection of Type Cultures, should be organised as a first step in stimulating intensive research in industrial mycology. Dr. Mundkur's volume is helpful in inviting attention to the wealth of mycological material in which the country abounds, and to the necessity for maintaining a national collection of cultures as already suggested in *Current Science* for May 1938 (Vol. 6, No. 11). M. S.

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The Recent Government Report on the **Quetta Earthquake of 31st May 1935** by Captain L. A. G. Pinhey, Additional Political Agent, Quetta, gives an authoritative and complete account of the action taken by the authorities immediately after the earthquake, for relieving the distress and suffering of the survivors, and later, towards the gradual reconstruction and repopulation of the City of Quetta. Among the major problems which one has to face immediately after a disastrous earthquake of the kind which occurred in Quetta, we may mention the rescue of those who are buried under the debris and are still alive, the establishing of communications with the outside world, the provision of shelter, food and medical attention to the survivors, and the preventing of looting by irresponsible people in the affected area. The Report under review gives an account of the work done in these and several other directions, and bears eloquent testimony to the remarkably expeditious and efficient manner in which the different relief operations were organised and conducted. The detailed information given in each case of how exactly the authorities tackled their problems and went about organising this relief work will, we have no doubt, be of great value some day when one may be called upon to deal with a similar situation elsewhere.

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Researches at Rothamsted.—There is probably no other science which bristles with so many controversial differences of opinion as agriculture. This is undoubtedly due to the very large number of variable factors which go to raise a crop ; and the unravelling and discernment of the individual effect due to any single factor is possible, in several cases, only by exhaustive statistical analysis of systematic data collected over a period of several decades. The value of the data is greatly augmented by the continuity of the original lay-out of the experiment and fidelity of the replications year by year. The unique success of the Rothamsted Experimental Station in achieving this object—especially in their well-known long term experiments—has been mainly due to the relative permanence of its Staff, several of whom have spent decades in the service of the Institute ; and one agrees with the note of caution sounded by the Director in the *Annual Report* of the Station for 1937, which has recently

been published, when he regrets the loss of a number of valuable members of the Staff during the year and observes that "serious consideration should be given to the avoidance of too great a rate of change".

An interesting feature of the present Report is the prominence given in the opening paragraphs to a discussion of the objectives which an Experimental Station such as Rothamsted should keep in view, in relation to the national agricultural economy of the country in which it is situated. Though the area under arable crops and the total number of workers on land, in England and Wales, have shown considerable decreases within the last 20 years (amounting to about 25%), the total value of agricultural output rose from £141.7 million in 1925 for 803,000 workers to £170.7 million in 1936 for 641,000 workers. This increased efficiency of the farmer and worker has been mainly due to the work of Agricultural Stations in England and Wales—chiefly the one at Rothamsted. The work of this station is winning increased recognition at the hands of Government and public alike, and the present year's developments include the erection of new and bigger laboratories to cope with the increased work in the chemical departments, at a cost of £30,000, of which sum half has been promised by Government.

The Station has already chalked out a tentative scheme for the celebration of its Centenary in 1943 and has set before itself the ambitious programme of giving financial stability to the work of its various departments, by collection of permanent endowments to the tune of £125,000. The unique value of the Station's work is fast making it a National Trust and the appeal will no doubt meet with the same quick response as what greeted the previous one for £60,000 in 1934.

C. N. ACHARYA.

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London Scientific Film Society.—*Chemistry and Industry* (October 1st, p. 918) reports the formation of a Scientific Film Society in London. This Society proposes to give a series of shows of good films on scientific themes to its members and their guests in the first instance. To achieve this purpose, the Society will foster the production of films, which will be instructive of the phenomena in scientific research as cannot be otherwise ordinarily be understood and more especially of the interrelation between science and technology and their impact on modern society. An animated cartoon on the operation of the internal combustion engine, another illustrating a mathematical differential equation, a biological film on the paramecium, an engineering film illustrating the boring for oil and a film illustrative of how electrical and other communications have broken down natural barriers, are a few of the representative films included in the programme for the inaugural show in November. The show of films will be accompanied by appropriate lectures.

The Society has been formed on the recommendation of the Special Committee set up by the Association of Scientific Workers to enquire into the prospects of scientific documentary films. This Committee found that the few scientific

films produced by the British Film Organisations had a great appeal on the audience.

Professors Sir Frederick Gowland Hopkins, Sir William Bragg and Professor L. Hogben and Julien Huxley are the distinguished patrons of the Society, which has on its rolls already about a hundred and fifty members.

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Insecticidal Plants.—The possibilities of cultivation of insecticidal plants in India and the manufacture of vegetable insecticides, are engaging the attention of the Industrial Section of the Botanical Survey of India. There is an increasing demand for insecticides from vegetable sources which are comparatively harmless to human beings, and are for this reason, preferred to the more dangerous arsenical and other chemical preparations. Among such insecticides mention may be made of "Tuba" root of commerce (*Derris*), Pyrethrum of commerce (*Chrysanthemum Cinerariefolium*) and Tobacco infusion, decoction, nicotine, nicotine sulphate, etc., produced from tobacco waste (*Nicotiana tabacum*). The roots of *Derris* and flowers of Pyrethrum are considered to be essential proprietary ingredients of insecticides used as dust or spray.

A number of species of *Derris* grow wild in India. The root of *Derris ferruginea* which occurs in Assam, is rich in Rotenone (nearly 3 per cent.) and shows possibilities for commercial exploitation (see this *Journal*, 1938, 7, 22). Insecticides prepared from *Derris* have been tried with success against biting and sucking insects, against caterpillars which damage cabbage crops and against the mango leaf hopper. Attempts to cultivate the "Tuba" of commerce or *Derris elliptica* are being made at the Forest Research Institute, Dehra Dun, and by the agriculture departments of Travancore, Kashmir, Punjab and Mysore. Mysore imported "Tuba" from the Federated Malay States, 4 years ago and grew the plant successfully. Two-year old plants have yielded 5-7 per cent. rotenone.

Pyrethrum has been successfully grown in Murree in the Punjab in experimental plots and its cultivation may be easily extended to other parts of India where the climate and soil are favourable for its growth.

Other Indian plants which are reported to have insecticidal properties are: Kharina (*Milletia pachycarpa*); Pilavaram (*Mundulea suberosa*); Karanja (*Pongamia glabra*); Lashtia (*Tephrosia candida*); Neem (*Melia Azadirachta*); Madar (*Calotropis procera*), Turmeric (*Curcuma longa*) and *Polygonum flaccidum* and *P. assamicum*.

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Institute of Plant Industry, Indore.—Films on silage making, rain-watered compost, municipal compost and improved methods of sugarcane cultivation, have been prepared by the Institute of Plant Industry, Indore, for exhibition with a view to bringing home to the cultivators in the States of Central India and Rajaputana, the results of research and improvements in the science and practice of agriculture. The Institute has on its programme the preparation of films on the eradication of Kans, the working of the Indore Ridger, the standard process of making compost, the drying of cottonseed to prevent pink boll-worm and the making of bone char.

It will be recalled that in the report on the work of the Imperial Council of Agricultural Research (1937), Sir John Russell laid special emphasis on the urgent need for bridging the great gulf separating the Agricultural Experiment Stations and the cultivators. The exhibition of films bearing on improvements in agricultural operations can be of immense help in narrowing down the gap. The work of the Institute of Plant Industry to popularise the results of scientific research is worthy of emulation by other experiment stations.

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Royal Asiatic Society of Bengal.—At the ordinary monthly meeting of the Society held on 7th November, Mr. Johan van Manen read a paper on *Recent Exploration in Tibet*. It is of interest from time to time to review the advance of our knowledge concerning Tibet. "In the last decade exploration has been very active. Geographically the work done may be roughly grouped into exploration (1) in the West, mainly around Kashmir, (2) in the South, the great Himalayan peaks, (3) in the East, the Countries West of China, and (4) in Central Tibet, the few visits to Lhasa and other places. The exploration is chiefly of a geological, alpinistic, geographical, botanical, zoological, anthropological, linguistic or historical nature, according to the special interest of the travellers."

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Scientific Literature : Problems of Co-ordination.—At the Fourteenth International Conference on Documentation, held at Oxford on September 21-26, a paper on "The Co-ordination of Scientific Literature" was presented by Mr. J. Lewkowitsch.

The problem discussed was the vital present-day need of rendering available to the scientific worker, rapidly, completely, and in classified form, the scientific literature published by other workers. The framework of a complete scheme for the rationalisation of publication, abstracting and co-ordination of the literature was put forward as an ideal towards which to work. The chief suggestions were: (1) That the number of journals published (pure or applied science, or reviews) shall be limited by international agreement of societies and publishers, in regard to scientific recognition. (2) That these journals shall be the only recognised medium for research work, and that other journals shall not be abstracted. (3) That all authors shall prepare their own short abstracts, for the form of which the editors shall be responsible, and that the abstracts shall be sent by the editors to central organisations publishing classified abstracts (*Chemical Age*, October 1, 1938).

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Col. C. M. Thompson, I.A., Director, Survey of India, retired from service on September 21, 1938, on attaining the age of superannuation. Col. Thompson, an officer of versatile qualifications, had extensive experience in all branches of the work of the Survey; he was a specialist in cadastral Survey, and knew many languages, including some of the Indian languages,

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The Nobel Prize for Physics for the year has been awarded to the famous Italian Scientist, Sgr. Eurico Fermi, Professor of Physics, Rome University for "the discovery of new elementary Radio-active substances engendered by the irradiation of Neutron" and other reactions caused by neutrons.

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The Lord President of the Council has appointed **Dr. G. Stafford Whitby**, at present Director of the Division of Chemistry, National Research Council, Canada, and formerly Professor of Chemistry at the McGill University, Montreal, to be the Director of the Chemical Research Laboratory, Teddington, in succession to Sir Gilbert Morgan, F.R.S., who retired on 30th September last.

Dr. Whitby is expected to take up his duties early in 1939.

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Prof. Karam Narayan Bahl, D.Sc. (Panj.), D.Phil. (Oxon.), F.R.A.S.B., F.N.I., Head of the Department of Zoology, University of Lucknow, has been awarded the D.Sc. degree by the University of Oxford, the highest distinction in Science in that University. Prof. Bahl is the first Indian to be so honoured. He is the foremost morphologist in India and holds an eminent position amongst the zoologists. He is the founder of the School of Zoology at the Lucknow University where morphological work has been done in almost every branch of Zoology. He has guided the research work of a number of students, amongst whom as many as seven have secured their doctorates from the University of Lucknow.

The *Indian Zoological Memoirs* series projected and edited by Dr. Bahl have laid the foundations of Indian Zoology and form an important landmark in the development of this branch of science in India.

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The **Noel Deer Gold Medal** for the year 1936, has been awarded to Mr. R. C. Shivastava and Dr. H. D. Sen in consideration of their report relating to large-scale experiments on the Treatment of Sugar Factory Affluents.

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Mr. K. S. Arnold has been appointed Professor of Sugar Engineering, Imperial Institute of Sugar Technology, Cawnpore.

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Dewan Bahadur Dr. A. Lakshmanaswamy Mudaliar, has been appointed Principal, Medical College, Madras.

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According to a United Press message, the Government of Bihar have decided to employ on salaries ranging from Rs. 250-300 per mensem, four Czechoslovakian Jews, in the Industries Department of the Government.

In a note printed in *Current Science* (1938, 7, 31), the desirability of employing qualified Jews, who have been expelled from Central Europe due to political reasons, was indicated. The above decision of the Government of Bihar is very much to be welcomed.

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University of Mysore.

I. *Personnel*.—Mr. J. C. Rollo, M.A., J.P., Principal, Maharaja's College, Mysore, who was granted combined leave, returned from leave and assumed charge of the office of Principal from Mr. A. R. Wadia on the 6th October 1938.

II. *Convocation*.—The Twenty-first Annual Convocation for conferring degrees was held on the 6th October 1938, His Highness the Chancellor, presiding. The Rev. C. F. Andrews delivered the Convocation Address.

III. *Extension Lectures*.—Dr. C. Minakshi, M.A., Ph.D., Madras, delivered a lecture in English at Mysore on "Some South Indian Bronzes" illustrated with lantern slides.

IV. *Deputation to Congress and Conferences*.—(1) Dr. M. H. Krishna, M.A., D.Litt., Professor of History, Maharaja's College, Mysore and Director of Archaeological Researches in Mysore, was permitted to attend the Indian History Congress held at Allahabad on the 6th, 7th and 8th October 1938.

(2) Mr. V. Raghavendra Rao, M.A., B.T., Lecturer in History, Maharaja's College, Mysore, was deputed to attend the Historical Week celebrated at Kamshet (Dt. Poona) from the 2nd to the 8th October 1938.

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Andhra University.—The Degree of Master of Science Honours has been conferred on (1) Mr. Bhaskararama Murti for his thesis "Chemical Investigations of Indian Medicinal Plants", (2) Mr. V. D. N. Sastri, for his thesis "Study of the reactivity of the double bond in some substituted coumarines and geometrical inversions in acetylated coumaric acids".

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University of Madras.—The Degree of Master of Science has been conferred on (Miss) S. Pankajam in consideration of the thesis entitled "On some topics Connected with Boolean Algebra".

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Outfits for Absorption Spectrophotometry : (Photographic, Visual, Photo-electric).—Much valuable information can be deduced from the absorption curve of a substance and in modern practice this is an accepted method for many biological assays; (blood serum, cerebro-spinal fluid, the vitamins, etc.), for the identification and measurement of organic substances, dyes, and other colouring matters of food substances, etc. With the introduction of the spekker ultra-violet spectrophotometer by Adam Hilger, Ltd., the technique of absorption spectrophotometry has been made very convenient, speedy and accurate. A recent pamphlet issued by Messrs. Adam Hilger Ltd., London, describes in a very elegant manner the various outfits placed by this firm on the market for (i) ultra-violet spectrophotometry; (ii) visual spectrophotometry and (iii) photo-electric methods of absorption measurements in the ultra-violet; the pamphlet also

serves as a useful guide to the choice of suitable apparatus for any purpose in view.

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Diffusion Pumps for the Production of High Vacua.—We have received a new catalogue of these pumps, of the all-metal type, from Messrs. W. Edwards & Co., the well-known firm of London. Mercury diffusion pumps provide the most satisfactory means of reaching very low pressures and even the smallest sizes have speeds at low pressures much greater than can be obtained by rotary pumps. Furthermore, they are extremely robust, have no moving parts to wear, and can be dismantled for cleaning with a minimum of trouble. The range of diffusion pumps and accessories described in this catalogue, will be found to cover almost all the requirements, from small-scale laboratory work to large-scale industrial processes, where the lowest possible pressures and highest pumping speeds are required. It should prove of interest to physicists, chemists, and works managers, in most industries.

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Announcements.

The Annual Conference of Medical Research Workers in India will be held in New Delhi from 12 to 17th December, under the auspices of the Indian Research Fund Association.

International Union of Geodesy and Geophysics.—The Seventh Meeting of the International Union will be held in Washington, D.C. between 4-16 September, 1939. This will be the first meeting of the Union outside Europe. The meeting will be divided into seven sections, including meteorology. Further details regarding the meeting can be had from Dr. John A. Fleming, General Secretary, American Geophysical Union, Department of Terrestrial Magnetism, 5241, Board Branch Road, N.W. Washington D.C.

Seventh International Botanical Congress.—The Seventh International Botanical Congress will be held in Stockholm, Sweden, on July 17-25, 1940.

The Congress will visit the botanical institutions of the University and the Swedish College of Agriculture at Uppsala in addition to several botanical institutions in and near Stockholm. Visits will also be paid to Lund (Botanical Institute) and Goteborg (Gothenburg Botanical Garden).

More detailed information may be obtained from the Secretary, Dr. C. R. Florin, Riksmuseum, Stockholm 50, Sweden.

The Tenth International Congress of Military Medicine and Pharmacy will be held in Washington D.C., from May 7-15, 1939. General Charles R. Reynolds, the Surgeon-General of the United States Army, will be the President of the Congress. Further details regarding the Congress can be had from the Secretary-General (Colonel Harold W. Jones), Army Medical Library, 7th Street and Independence Avenue, Southwest Washington, D.C., U.S.A.

International Acetylene Congress.—The Thirteenth International Congress of Carbide, Acetylene, Oxy-Acetylene Welding and Allied Industries will be held in Munich, Germany, from June 25 to July 1, 1939. The three preceding congresses were held in Zurich (1930), Rome (1934), and London (1936).

The purpose of the Congress is to promote and discuss all questions of scientific, technical and economic nature which are related to the preparation and uses of calcium carbide, of acetylene, and of the oxy-acetylene process.

Dr. Schmitz, Chairman of the Board of Directors of I.G. Farbenindustrie, will preside at the Congress. Official inquiries should be directed to the Office of the Congress in Berlin-Friedenau, Bennisgenstrasse 25, Berlin, Germany. Lectures and reports should be sent to the Office of the Congress by February 1, 1939.

The Secretary, Central Board of Irrigation, writes:—Waterlogging and Land Reclamation are two of the subjects which have been under consideration by the Board since its institution in 1930 and as there are many problems connected therewith, which still remain unsolved, they will probably continue to be discussed annually by the Board and its research committee. In order to ascertain the present state of knowledge, to compare conditions in various parts of India and to decide what further investigations are necessary and the lines on which they should be undertaken, the Board prepared two questionnaires entitled "Questionnaire on conditions predisposing to harmful soil saturation which may ultimately result in waterlogging" and "Questionnaire on Land Reclamation". These were prepared with the assistance of Dr. E. Mackenzie-Taylor, M.B.E., Director, Punjab Irrigation Research Institute, and his staff and the replies to the questions which they provided, together with those supplied by Officers in other Provinces, were discussed by the Board and its Research Committee at their annual meetings in 1936 and 1937.

At its last annual meeting the Board decided that the questions and final replies accepted by the Board should be printed and published as "Notes on Waterlogging and Land Reclamation in the Form of a Questionnaire".

The Secretary of the Board will be glad to receive further information on any of the problems dealt with in this publication or to provide further detailed information if required.

According to a press communique issued by the **King George Thanksgiving (Anti-Tuberculosis) Fund**, a medical Post-graduate course will be held at the All-India Institute of Hygiene and Public Health, Calcutta, from January 30 to February 25, 1939. No admission or tuition fee will be charged. The course is open to registered medical practitioners whether in Government service or otherwise. There are 30 vacancies for

the course. Selected candidates will be paid single II class railway fare, to and from Calcutta, up to a maximum of Rs. 100 per head. Applications in the prescribed form should reach the Secretary before December 10, 1938.

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We acknowledge with thanks the receipt of the following:—

"Agricultural Gazette of New South Wales," Vol. 49, No. 10.

"Journal of Agricultural Research," Vol. 57, Nos. 4-6.

"Monthly Bulletin of Agricultural Science and Practice," Vol. 29, No. 9.

"Agriculture and Live-stock in India," Vol. 8, No. 5.

"The Philippine Agriculturist," Vol. 27, No. 5.

"Journal of the Royal Society of Arts," Vol. 86, Nos. 4479-82.

"Biochemical Journal," Vol. 32, No. 9.

"Biological Reviews," Vol. 13, No. 4.

"Chemical Age," Vol. 39, Nos. 1004-1008.

"Journal of Chemical Physics," Vol. 6, No. 10.

"Berichte der deutschen chemischen Gesellschaft," Vol. 71, No. 10.

"Journal de Chemie Physique," Vol. 34, Nos. 8-9.

"Experiment Station Record," Vol. 79, Nos. 3-4.

"Transactions of the Faraday Society," Vol. 34, No. 210.

"Indian Forester," Vol. 54, No. 11.

"Forschungen und fortschritte," Vol. 14, No. 29.

"Medico-Surgical Suggestions," Vol. 7, No. 10.

"Calcutta Medical Journal," Vol. 34, No. 5.

"Review of Applied Mycology," Vol. 17, Nos. 9-10.

"American Museum of Natural History," Vol. 42, No. 3.

"Nature," Vol. 142, Nos. 3595-99.

"Journal of Nutrition," Vol. 16, No. 4.

"Proceedings of the Royal Society of Edinburgh," Vol. 53, Part 2.

"Research and Progress," Vol. 4, No. 6.

"Canadian Journal of Research," Vol. 16, Nos. 8-9.

"Science Progress," Vol. 33, No. 130.

"Indian Trade Journal," Vol. 131, Nos. 1686-89.

"Indian Journal of Veterinary Science and Animal Husbandry," Vol. 8, Part 3.

Catalogues.

"Outfits for Absorption Spectrometry and Spectrographic Outfits." (Adam Hilger Ltd., London, July 1938).

"New Scientific and Technical Books," (Chapman & Hall Ltd., London). Autumn 1938.

"Monthly List of Books" (Weldon and Wesley), September, 1938.

"Diffusion Pumps for the Production of High Vacua" (W. Edward and Co., London).