

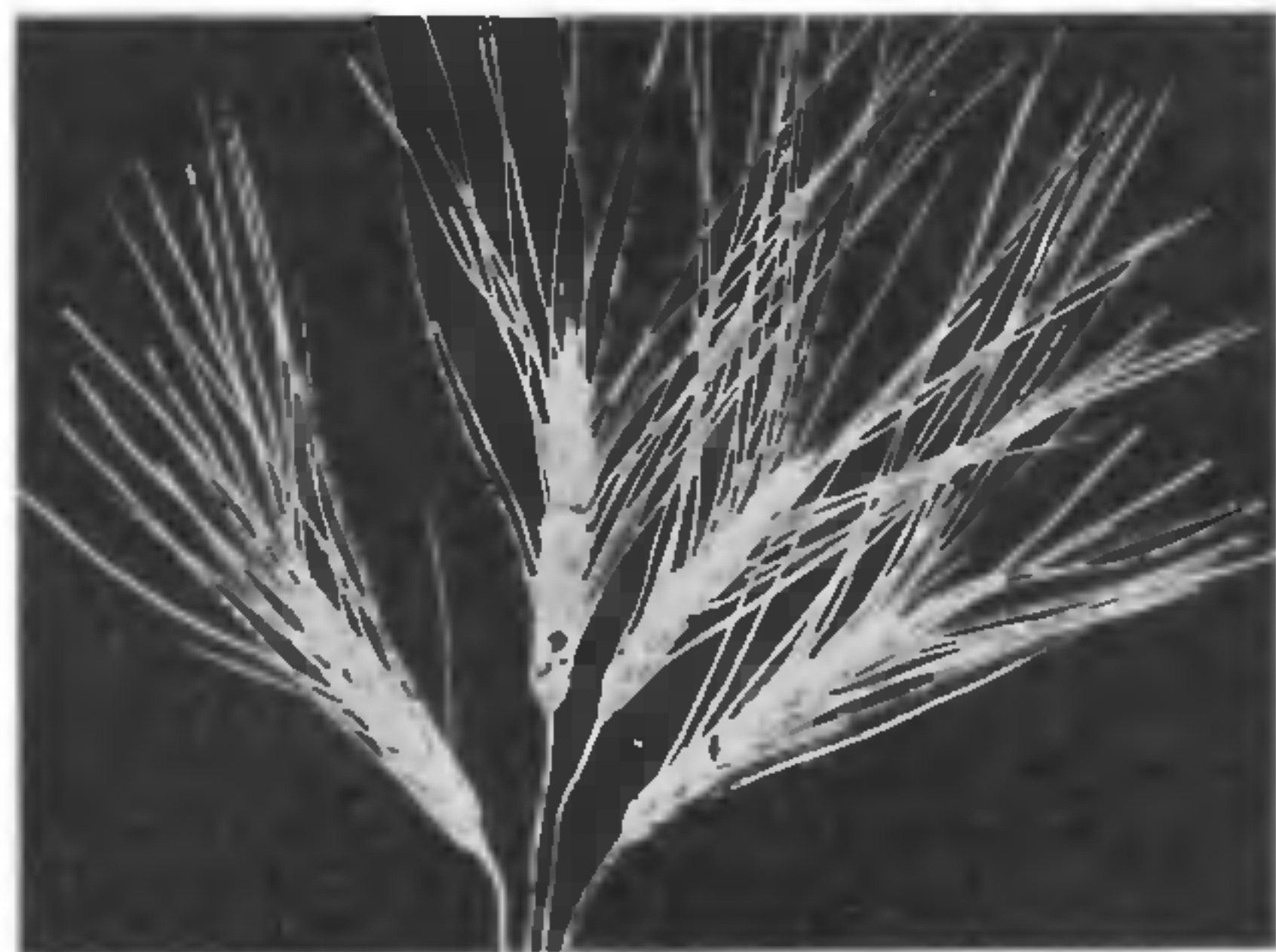
Science Notes.

A New Variety of Wheat.—Mr. B. S. Kadam, Karjat, writes :

"Wheat is one of the most important staple crops in the Bombay Presidency, occupying an area of over 20 lacs acres per annum, including the Indian States. By far the largest acreage is concentrated in the Deccan, comprising the districts of East and West Khandesh, Nasik, Ahmednagar, Poona, Sholapur and Satara. Over 75 per cent. of the area is under winter (rabi) wheat and is solely occupied by the species, *Triticum durum*, Desf. Locally the wheat is known as *Bansi* or *Pivala*. The Bansi wheat generally contains mixtures of red grains in various proportions, matures unevenly and yields a product poor in colour and lustre. Its yield is low.

The Department of Agriculture in the Bombay Presidency evolved improved strains of winter wheat which are now spreading in the major zones. Recently a new strain, Bansipalli 808, has been released for the Nasik district, which claims nearly 11 per cent. of the total area. The present note briefly describes the new wheat.

Bansipalli 808 was obtained from a cross between the improved Bansi strain, 168, and a synthetic type known as "Kala-Khapli" 568. Unlike the either parent it has white glumes and awns and matures in from 95 to 100 days—about a fortnight earlier than the local wheat.



Bansipalli 808.

It, therefore, does better in lighter soils than the local. The grain of the new wheat is larger in size, more lustrous and attractive in colour than the local. Being biologically pure it produces an even type of grain free from spotting.

The field trials of the new wheat in the district of Nasik have shown its superiority in both yield and quality. The average yield of Bansipalli 808 is 644 lbs. as against 532 lbs. per acre of the local. The better quality of grain fetches a premium of Rs. 2 to 3 per maund of 192 lbs. It is estimated that Bansipalli 808 brings to the farmer from Rs. 5 to 7 more per acre.

Bansipalli 808 should be sown slightly more thickly, i.e., about 45 to 50 lbs. per acre, as its grain is large. If sown in the middle of October it escapes rusts and frost, while late sowings are harmful as the dough stage of the crop coincides with low temperatures incident in the middle of January.

The new wheat has spread to the extent of 2,000 acres in the Nasik district. The demand for it is continuously increasing. With a view to accelerate its distribution the Agricultural Department produces pure stock of seed at its experimental farm in the Nasik district. The seed is supplied to the propaganda staff who further multiply the new strain on the private multiplication farms for subsequent distribution to the farmers.

* * *

Pyrophosphatase of Soya Bean (*Glycine Hispida*).—Mr. K. Venkata Giri, Indian Institute of Science, writes:—

Since the discovery of the presence of pyro-phosphatase in plants, yeast and muscles (Lohmann, *Biochem. Z.*, 1928, 202, 466) attention has been devoted to the study of the enzyme pyro-phosphatase which is present in several plant and animal tissues. The question whether the pyro-phosphatase is distinct from the phosphatase which hydrolyses glycerophosphate, hexose diphosphate and other phosphoric esters has received considerable attention (Kay, *Biochem. J.*, 1928, 22, 1446; Jacobson, unpublished work, cf. *Biochem. Z.*, 1931, 242, 393; Takahashi, *J. Biochem. Japan*, 1932, 16, 447; Uzawa, *J. Biochem. Japan*, 1932, 5, 19; Bauer, *Naturwissenschaften*, 1935, 51, 866).

The present note relates to the presence of a pyro-phosphatase which is quite distinct from the glycerophosphatase present in the aqueous extracts of germinated Soya bean, *Glycine Hispida* (Black variety). In Table I are given the results obtained by determining the activities of both the phosphatases before and after keeping the dialysed extracts of the germinated seed powder at 45° for about 3 hours at different pH's. The activities were determined at pH 5.2 for both Na β -Glycerophosphate and Na-Pyrophosphate hydrolyses.

TABLE I.

pH	Activity in mg. P after 30 min. hydrolysis at 35°		Ratio : Activity of the pyrophosphatase : Activity of the glycerophosphatase
	Na β -Glycerophosphate	Na-Pyrophosphate	
8.5	0.030	0.222	7.4
5.0	0.250	0.666	2.7
3.5	0.074	0.348	4.7
Control without heating	0.400	0.666	1.6

The results show that the two phosphatases differ in their stability at different pH values, the pyrophosphatase being more stable than the glycerophosphatase. Thus the two phosphatases may be considered to be distinct.

Further work on the complete separation of the two phosphatases, and their rôle and behaviour during the germination of the seed is in progress.

Discoveries at Sakkara.—It is announced that the excavations of the Egyptian Department of Antiquities under the direction of Mr. Walter Emery and Zaki Saad have resulted in very important discoveries at Sakkara (*Nature*, 1936, 137, 652). The excavations were begun as early as 1931. Present excavations in a series of 42 store chambers in the superstructure of a tomb which previously had escaped notice, has brought to light the complete grave furniture of Hamaka, the Vizier of Pharaoh Den of the first dynasty (c. 3000 B.C.). Numerous jars for storing wine with seals giving the names of Hamaka and his king, implements such as wooden sickles and large flint knives, a quiver containing reed arrows with tips of bone or flint and a spear with a head of ivory bearing the name of Pharaoh Zer, are some of the objects found. Other important findings are a large number of disks of stone, bronze or ivory, whose purpose has not been understood. Some of the disks are inlaid with different varieties of stone; the one showing hounds chasing a gazelle is in a style which is said to remind the observer of the products of Minoan art of some fifteen hundred years later. Only part of the chambers has so far been cleared.

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The Ganges Canal Hydro-Electric Grid Scheme.—The upper Ganges Canal which commands $4\frac{1}{2}$ million acres between Hardwar and Aligarh, passes over 13 falls of which eight are economically suitable for electrification. To harness these for energy purposes and complete a grid spreading all over a purely agricultural province, with hardly any concentrated loads, is the aim of the scheme, which promises to be successfully realised in the very near future. The 1934 Enquiry Committee and the 1935 Enquiry Committee unanimously agreed that the scheme is fundamentally sound both from the economic and technical points of view. The system is of potential value to the United Provinces, as a means of expanding agriculture and assisting industry. It has been frequently pointed out that irrigation in Gangetic Valley can no longer be economically developed without some cheap and flexible form of power for pumping water from the deep-set rivers and underground reservoirs. During the years 1931–33, the Irrigation Department of the United Provinces started several tube-wells and showed that extensive irrigation was possible by means of State-owned tube-wells. In 1934, it was decided to extend the vast irrigation project by providing for the construction of some 1,500 wells to command nearly 2 million acres in the western districts of the Province within two years. As a result of this development, it was found necessary to accelerate the construction programmes of the grid scheme with a view to complete it within the financial year 1937–38. The scheme comprising eight generating stations and 1,970 sub-stations spread over a vast area, possesses several distinctive features. It will provide the way for an electrical advance on a larger scale into tracts hitherto beyond the reach of the Ganges Canal falls as a source of power. It will provide for the irrigation of some 2 million acres of land, at present unprotected by irrigation. The combination of steam generation with a hydro-electric system will enable the benefit of cheap electricity to be extended eastwards to millions of agricul-

turists existing at present on arid tracts with little hope of economic relief.

* * *

Improvement of Cotton in India.—Since the formation of the Indian Central Cotton Committee, the Cotton Industry in India has received an impetus by the increase in the production of suitable varieties combining long staple with a high yield and hardness. In order to ensure the permanency of this improvement, it is essential to assure a sufficient supply of the pure seed. With this object in view, the Indian Central Committee has organised a system of seed distribution in co-operation with Provincial Departments of Agriculture, Co-operative Societies, etc., through a network of seed distribution and extension schemes which are operating in different parts of India.

Scheme	Total quantity of seed distributed in lbs. (1934–35)
Sind (1930)	78,533
Surat (1929)	2,312,818
Hubli (1930)	1,462,861
Khandesh (1931)	1,965,000
Athani (1931)	421,232*
Deccan Canals (Banilla)	18,650
Verum Scheme (U. P.) (1930)	2,429,616
Raichur-Gulbarga (1930)	487,782
Baroda	231,285
Madras (Tiruppur)	1,106,700

* Owing to loss of crops by floods, the returns are much smaller than anticipated.

There has been in India in recent years a steady extension of better varieties of Cotton and higher return to the cultivators.

* * *

Lord Linlithgow and Agricultural Improvement.—A few days after assuming the office of Viceroy and Governor-General of India, H. E. Lord Linlithgow, whose keen interest in effecting agricultural improvement is too well known, purchased two pedigree stud bulls of Haryana breed, one from Karnal and the other from Hissar, which will be made available to the cultivators for breeding purposes. A motor van will be provided to enable their being conveyed to distant villages whenever required. His Excellency is providing a third bull for being presented to the Delhi Pinjrapole for breeding purposes.

In the course of his speech on the occasion of the inspection of the two bulls, the Viceroy laid stress on the fact that the cow and the working bullock bear the entire structure of Indian agriculture. For tilling the soil and carrying the harvest to the market, for the feeding of the expectant mother and for providing nutriment to growing children, the bullock and the cow are essential. For bringing about an effective improvement in agriculture, attention must first be directed towards the improvement of the cattle. His Excellency appealed to the philanthropists to follow his example and come forward with similar offers, in order to bring about a rapid improvement of the cattle throughout the length and breadth of the Country.

Soya Beans.—Mr. C. Jinarāja Dāsa, who has been recently touring in Cochin-China and Java, in a communication addressed to us, mentions that soya bean which is extensively used in the dietary, is considered by the people of the countries to be essential for maintaining their health. Mr. Jinarāja Dāsa writes, "In Java the soya bean sauce, prepared by salting, is considered a prophylactic against malaria. I am credibly informed that every morning all soldiers are obliged to take a tea-spoonful of the sauce."

Soya bean, undoubtedly, enjoys a reputation for its nutritive value; the claim that it is a prophylactic against malaria requires, however, careful scrutiny. Sometime ago, the *Indian Forrester* (1935, 61, 541, 733, 795) published in its columns correspondence on *beer and malaria*, and it was claimed that beer was a prophylactic against malaria. This was contradicted by some (cf. *Indian Forrester*, 1935, 61, 665) and supported by others!

* * *

Central Jute Committee.—According to a recent Associated Press message, the Government of India have on hand a proposal to constitute a Central Jute Committee, more or less on the model of the Central Cotton Committee. The Committee will be composed of the Vice-Chairman of the Imperial Council of Agricultural Research, the Agricultural Advisor to the Imperial Council, one representative each of the agricultural departments of the Bengal and Bihar Governments, a representative of the co-operative movement in Bengal, two representatives of the Indian Jute Mills Association, one representative elected by the Bengal National Chamber of Commerce, one representative of the Jute trade nominated by the Bihar Government and one by the Assam Government. The Committee will also consist of eight persons to represent agricultural interests. The appointment of such a committee to conduct research in Jute and watch over the interests of all branches of trade was urged by the Royal Commission on Agriculture under the chairmanship of Lord Linlithgow. The Committee, when appointed, will be under the control of the Government of India.

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Bauxite Prospects in India.—Though bauxite has been known to exist in India in large quantities it has never been exploited adequately for industrial purposes and its only use was found by oil companies for the purification of kerosene and by chemical companies for the preparation of aluminous sulphates on a small scale. Experiments have been in progress for the manufacture of bauxite refractories for furnaces in Bengal and for preparing abrasive products such as grinding wheels. Research in the preparation of calcium aluminate cement has also been successful on a laboratory scale.

As the demand in India for these products is rising, the Indian bauxite will find greater use in the preparation of refractories, abrasives and cements. At one time it was hoped that calcined bauxite could be exported, but, owing to the high cost of transport, that has not seemed possible. The chief use of bauxite lies in the manufacture of aluminium, but owing to the absence of cryolite nothing on an appreciable scale could be attempted. But cryolite has now been discovered in India

and is available in sufficient quantities, and as a result, an Indian aluminium industry is likely to grow in future. Already a beginning has been made by the Kolhapur State where large bauxite deposits exist.—(*Chemical Age*, 1936, 34, 332.)

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Joint Easter Session, 1936.—Under the auspices of the Association of Economic Biologists, Coimbatore, the Indian Academy of Sciences, the Indian Chemical Society (Madras Branch), the Institute of Chemistry of Great Britain and Ireland (Indian Section), the Society of Biological Chemists, India, and the South Indian Science Association, Bangalore, the Joint Easter Session, 1936 was held in the Central College, Bangalore, from 10th to 14th April 1936, both days inclusive. Dewan Bahadur N. N. Ayyangar, B.A., L.C.E., M.I.E., I.S.E., Chief Engineer, Mysore State, was the President of the Session.

The session commenced with a welcome address by Rajasabhabhushana Sir C. V. Raman, Kt., F.R.S., N.I.

For the purpose of reading original papers the Session was divided into four sections, each section with a separate President, as detailed below:

Section	President	No. of papers communicated
1. Mathematics and Physics	Dr H. Parameswaran, M.A., Ph.D., D.Sc.	6
2. Medicine	Dr. B. K. Narayana Rao, B.A., M.B.C.M.	3
3. Chemistry	Dr. B. N. Iyengar.	25
4. Biology	Dr. M. A. Sampathkumaran.	6

Dr. G. J. Fowler, D.Sc., F.I.C., spoke on the "Recent Advances in Sanitary Science," while Dr. R. Nagendran, M.B.B.S., F.R.C.S., and Dr. B. Venkatasubba Rao, M.B.B.S., M.B.C.P., spoke on the Recent Advances "in Surgery" and "in Medicine" respectively. Rao Bahadur B. Venkatesachar, M.A., F.Inst.P., spoke on the "Recent Advances in Physics."

Mr. N. S. Nagendra Nath, M.Sc., gave a lecture on "Neutrino Theory of Light".

Under the presidency of Dr. S. Subba Rao, B.A., M.B.C.M., etc., an interesting discussion on "Chemical and Biological Assay of Some Indian Foodstuffs" was held. Miss K. Bhagvat, Mr. M. Sreenivasaya, Mr. Y. V. S. Iyer and Dr. C. N. Acharya were the principal speakers.

There were two public lectures, one by Dr. H. Parameswaran, M.A., Ph.D., D.Sc., F.Inst.P., on "Modern Telescopes" and another by Dr. B. K. Narayana Rao, B.A., M.B.C.M., M.R.C.S., D.P.H., D.O., on "Some Aspects of Defective Vision".

Members of the Session visited the Imperial Institute of Animal Husbandry and Dairying, MacIsaac's Gardens and the Thippagondanahalli Water Works.

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Indian Chemical Society.—At a meeting of the Society held on the 23rd April, the following gentlemen were duly admitted having paid their first subscription:

Mr. Dharendra Mohon Mukherjee, M.Sc.; Mr. Santiranjana Palit, M.Sc.; Mr. Jagannath Gupta, M.Sc.; and Prof. S. D. Arora, M.Sc., I.T.

The following gentlemen were elected by ballot, Dr. S. Ghosh and Dr. P. K. Bose acting as scrutators:

Dr. Lavji Thoria, Dr. Ing.; Mr. M. U. Parmar, M.Sc.; Mr. A. Jogarao, M.Sc.; Mr. K. Kameswara Sarma, M.Sc.; Mr. Kalipatnapu Kondaiah, M.Sc.; Mr. S. Raju, M.Sc.; Mr. G. R. Phansalkar, M.Sc.; Mr. Sarju Prasad, M.A., M.Sc.; and Dr. T. C. Choudhury, M.A., Ph.D.

Dr. H. K. Sen delivered a lecture on "Place of Technical Research in National Economics".

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Travel in the Stratosphere.—With rapid advances in aviation, the question of travel in the stratosphere is gathering increased interest; it has several advantages; air resistance is very low and visibility is unhindered by cloud, rain or fog; there is no likelihood of air sickness as the air is still and not bumpy.

Prof. Hill (*Jour. Roy. Soc. of Arts*, 1935, 84, 162) discusses the problem in its two-fold aspect of man and engine under the low pressure and temperature conditions in the stratosphere. For travel in reasonable comfort some 12 km. above the earth, there is no escape from fire-proof, sealed oxygen filled chamber; and the pressure inside has to be maintained at ground atmospheric value on account of the very narrow limitations of the human body in this respect.

In regard to the engine itself, Prof. Hill points out the need for multi-stage superchargers involving additional weight and power. Other problems of the engine are its cooling and lubrication and the choice of suitable fuel.

Considering the time taken for climb and descent, travel in the stratosphere can only be considered for distances over 1,000 miles; taking the case of the shortest trans-Atlantic crossing (about 1,850 miles), examination of a number of alternatives shows that the advantages appear to lie in flying at a height of some 40,000 feet cruising at 275 miles per hour and carrying four passengers with 800 h.p. More passengers can be carried with increased power.

It is pointed out that speeds equal to or greater than that of sound in air may prove to be difficult on account of energy loss in the shock wave set up by the aeroplane.

R. E.

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Atmospheric Pollution (Twenty-First Report).—His Majesty's Stationery Office, Price 5s. net.—Annual Reports are issued on observations made by the bodies co-operating with the Department of Scientific and Industrial Research in the study of the extent, character and variation of atmospheric pollution. Those who have not obtained a copy of the 20th Report may welcome a reminder that it was published last year at the price of 5s., post free 5s. 3d. The latest report is the 21st which has recently appeared. Special interest attaches to the account it gives, in a "popular" form, of a systematic examination of the data obtained with deposit gauges over a period of 20 years. This analysis will enable plans to be laid for the further investigation of the problem of smoke pollution.

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Prof. Meghnad Saha, F.R.S., of the Allahabad University, was a guest of honour at a party given by the German Academy in Munich, during last month. Prof. Saha enjoys an international reputation for his investigations in Astrophysics. Prof. Sommerfeld, Head of the Depart-

ment of Theoretical Physics, in the University of Munich, in welcoming Prof. Saha, said that the Professor was a pillar of scientific achievement both in India and in the world of scholars.

Prof. Saha will represent the University of Calcutta at the International Congress of Mathematics which will be held at Oslo from 13th to 18th July 1936.

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Dr. Rudolph Matas, Professor Emeritus of Surgery, Medical School of Tulane University, has been elected President of the International Congress of Surgeons which will be held at Vienna during the summer of 1936.

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Dr. H. K. Sen, Professor of Industrial Chemistry at the Calcutta University, has been appointed Director of the Indian Lac Research Institute, Ranchi, in succession to Mrs. Dorothy Norris.

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It is understood that a Committee of Experts will be appointed by the Government of India to review the working of the Imperial Council of Agricultural Research since its inception.

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It has been decided by the Government of India that in future the Industrial Intelligence and Research Bureau and the Advisory Council for Industrial Intelligence and Research will be known as the "Industrial Research Bureau" and the "Industrial Research Council" respectively.

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Solar Eclipse of June 19th.—A group of American scientists are going to Siberia next June to investigate the nature of the "coronium" in the sun.

On June 19 an eclipse of the sun will be observable in a narrow track across Siberia. During the eclipse, the corona of the sun, a great pearly halo, will be visible. In order to study it a large spectrograph, with a special telescopic extension, has been constructed by Gustave Fassin and Harold W. Straat in the Scientific Bureau of the Bausch & Lomb Optical Co. With this gigantic 700 pound spectrographic camera, Dr. Donald H. Menzel of the Harvard College Observatory, who heads the Siberian expedition hopes to determine whether "coronium" is really a chemical element unknown on earth or whether it is a chemical element already known which exists under extraordinary conditions in the sun.

A record of the spectrum of the corona will be taken throughout the progress of the eclipse, the spectrograph being suspended in a special cradle for this purpose.

Dr. Menzel, and his assistants, Dr. Joseph C. Boyce, of the Massachusetts Institute of Technology and Henry Hemmendinger, of Harvard, hope to discover the important secret which the corona is believed to contain.

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Announcements.

The American Institute of Physics (incorporated), which publishes the following eight Journals in Physics—(1) *Physical Review*, (2) *Physics*, (3) *Review of Modern Physics*, (4) *Journal of the Optical Society of America*, (5) *Review of Scientific Instruments*, (6) *Journal of the Acoustical Society of America*, (7) *Journal of Chemical Physics*

and (8) *The American Physics Teacher*—announces that its address is now 175, Fifth Avenue, New York, U.S.A.

To signalise the fifth year of the co-operative association of the Founder Societies of the American Institute of Physics, joint meetings of the Societies will be held in New York, October 28-31, 1936. In addition to the customary technical sessions, there will be a symposium on Industrial Physics and an Anniversary Dinner.

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The International Health Division of the Rockefeller Foundation wishes to obtain strains of virus from different outbreaks of influenza in order to compare their immunological properties in a study which is now in progress.

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Nature announces that the Second International Congress of Mental Hygiene has been postponed until July 1937 due to the present-day unsatisfactory conditions in the world. It was to have been held in Paris in July 1936 (see *Curr. Sci.*, 1936, 4, 622).

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The International Commission of Agricultural Industries have decided that the Fifth International Technical and Chemical Congress of Agricultural Industries should meet at Scheveningen (the Hague), Netherlands, from 5 to 10 July, 1937.

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A Congress of the International Federation of Plant Breeders will be held at Wageningen (Netherlands) from 22 to 27 June, 1936. Further information can be obtained from the Secretary Dr. M. J. Sirks, Wageningen.

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At the request of the International Institute of Agriculture at Rome, the Hungarian Government have undertaken to call the Second World Forestry Congress at Budapest (Hungary) from 10 to 14 September, 1936. The proceedings of the Congress will be conducted under the following sections for discussion of subjects: (1) Forestry Statistics and Policy, Forestry Legislation, Institutions of a social order; (2) Forest Management, Forestry instructions and research; (3) Trades in timber and other forest products; (4) Mechanical and chemical science related to wood; (5) Silviculture and the growing of forest plants; (6) Correction of torrent waters, Protection of the soil and standing trees; (7) Rural life and the various types of farming in their relation to forestry, Preservation of natural features, Tourism; and (8) Tropical Forestry.

The headquarters of the Central Organising Committee will be at the Royal Ministry of Agriculture in Hungary, Budapest V, Kossuth Lajos-ter II, and all correspondence should be addressed to them.

At the same time as the Congress, the Permanent International Committee for Charcoal as Carburant (C.I.P.C.C.) will hold its meeting for the year 1936 at Budapest.

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Science announces that the 2nd Preliminary programme of the Fourth International Congress for Experimental Cytology which will meet at Copenhagen from August 10 to 15 has been issued. (See *Curr. Sci.*, 1936, 4, 542). The first five days are devoted to the discussion of the

following scientific papers.—Physical chemistry of the soil; Histochemical problems and cell metabolism, Experimental morphology; Electrophysiology of the cell; Experimental cell pathology and Biology of irradiation. The last day will be devoted to excursions and visits to research institutions. Further information can be obtained from Dr. Harold Okkels, Secretary, Institute for Pathological Anatomy, 11, Frederick 51 Vej, Copenhagen, Denmark.

INDUSTRIAL RESEARCH BUREAU.

(1) *Oils and Soap Research Committee*.—The next meeting will be held in Simla on the 1st and 2nd June, 1936. The time and place of the meeting will be intimated later.

The names of official and nominated members who are likely to attend this meeting may please be intimated to the office of the Industrial Research Bureau before the 31st May 1936.

(2) *Second Meeting of the Industrial Research Council*.—The Government of India have decided that the second session of the Industrial Research Council will be held in Calcutta on July 2nd and 3rd, 1936. The hour and place of meeting will be notified later.

A visit to the Government Test House will be arranged for the morning of July 4th, 1936.

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We acknowledge with thanks receipt of the following:—

"Actualités Scientifiques et Industrielles," Nos., 267-269, 272, 275, 276, 278, 279, 280, 298, 309.

"The Agricultural Gazette of New South Wales," Vol. XLVII, Pt. 4.

"Journal of Agricultural Research," Vol. 51, No. 12; Vol. 52, Nos. 1 and 2.

"Journal of Agriculture and Livestock in India," Vol. VI, Pt. II.

"Journal of the Royal Society of Arts," Vol. LXXXIV, Nos. 4349 to 4352.

"Biochemical Journal," Vol. 30, No. 3.

"Biological Reviews," Vol. 11, No. 2.

"Chemical Age," Vol. XXXIV, Nos. 874-877.

"Journal of Chemical Physics," Vol. 4, No. 4.

"Journal of the Indian Chemical Society," Vol. 13, No. 2.

"Berichte der Deutschen Chemischen Gesellschaft," Vol. 69, No. 4.

"Russian Journal of General Chemistry," Vol. VI, Nos. 1 and 2.

"Journal de Chimie Physique," Vol. 33, Nos. 3 and 4.

"Experiment Station Record," Vol. 74, No. 3.

"Transactions of the Faraday Society," Vol. XXXII, No. 4.

"Indian Forester," Vol. 62, No. 5.

"Forschungen und Fortschritte," Vol. 12, Nos. 10 to 12.

"Indian Forest Records," Vol. I, No. 2 (Silviculture Series), "A study of the soils in the hill areas of the Kulu forest division, Punjab".

"Transactions of the Mining and Geological Institute of India," Vol. XXX, No. 2.

Government of India Publications:—

"Monthly statistics of production of certain selected industries of India, No. 11 of 1935-36," (Department of Commercial Intelligence and Statistics.)

"Indian Trade Journal," Vol. CXXI, Nos. 1556 to 1559.

Publications of the University of Illinois:—
 Vol. 33, No. 24, "Papers presented at the 22nd Annual Conference on Highway Engineering held at the University of Illinois on Feb. 21 and 22, 1935."
 Vol. 33, No. 9, "Chemical Engineering Problems."
 Vol. 33, No. 32, "Essentials of air conditioning."
 Vol. 33, No. 16, "Progress Report of the Investigation of fissures in railroad rails."
 Journal of the Indian Mathematical Society, Vol. II, No. 1.
 "The Calcutta Medical Journal," Vol. 30, No. 10.
 "Medico-Surgical Suggestions," Vol. 5, No. 4.
 "Research and Progress," Vol. II, No. 2.
 "Bulletin of the Patna Science College Philosophic Society," No. 6.
 "Monthly Bulletin of Agricultural Science and Practice," XXVI, Nos. 7 to 12; XXVII, Nos. 1 to 3.
 "The Calcutta Review," Vol. 59, No. 2.
 "Journal of the American Museum of Natural History," Vol. 37, No. 4.
 "Journal of the Bombay Natural History Museum," Vol. 35, Index.

"Nature," Vol. 137, Nos. 3465 to 3468.
 "Journal of Nutrition," Vol. 11, No. 3.
 "Indian Journal of Physics" Vol. X, Pt. II, and "The Indian Association for the Cultivation of Science," Vol. XIX, Pt. II.
 "Indian Physico-Mathematical Journal," Vol. 7, No. 1.
 "Canadian Journal of Research," Vol. 14, No. 3.
 "Science and Culture," Vol. 1, No. 12.
 "Science Progress," Vol. 30, No. 120.
 "Scientific American," Vol. 154, No. 5.
 "Indian Journal of Veterinary Science and Animal Husbandry," Vol. VI, No. 1.
 "Arkiv för Zoologie," Band 27 A, Hatten 4, (Nos. 30 to 40).

Catalogues:—

"New Books in General Literature," Spring 1936 (Edward Arnold & Co.).
 "Bell's Miscellany," Spring 1936 (G. Bell & Sons, Ltd.).
 "Chemie Physik," April 1936 (Verlag Chemie, G. M. B. H.).
 "Natural History of Science" April 1936 (Wheldon & Wesley, Ltd.).

Academies and Societies.

The National Academy of Sciences, India:

April 20, 1936. S. N. BANERJI: *Surface Tension of Some Colloidal Substances*. R. N. MITTRA: *Formation of Periodic Precipitate in the Absence of Foreign Gel*. H. R. MEHRA: *On A New Species of the Genus Harmotrema Nicoll, 1914 with a Discussion on the Systematic Position of the Genus*. N. R. DHAR AND E. V. SESHACHARYULU: *Nitrogen Fixation and Azotobacter Count on the Application of Sugars to the Soil*. N. R. DHAR AND S. K. MUKHERJI: *Molasses as a Manure and as an Agent in the Reclamation of Usar and Alkaline Soil*.—Results obtained from field trials with molasses as a reclaiming agent have been described. Using one ton per acre of alkaline land, the Mysore Agricultural Department could produce 1,200 to 1,800 lbs. of paddy per acre of Usar land where crops failed previously. Similar results have been obtained at Cawnpore and at Allahabad.

Indian Academy of Sciences:

April 1936. SECTION A.—T. R. SESHADRI AND P. SURYAPRAKASA RAO: *Geometrical Inversion in the Acids derived from the Coumarins. Part II Cis to Trans*.—A rapid and efficient method has been found for preparing coumaric acid and 4-methyl coumaric acid from coumarin and 7-methyl coumarin respectively by treatment with mercuric oxide in the presence of cold alkali. S. PARTHASARATHY: *Ultrasonic Velocities in Liquid Mixtures*.—The variation of the calculated adiabatic compressibility of the mixtures studied was found to be not always strictly proportional to concentration. K. SAMBASIVA RAO: *On a Function connected with the Singular Series*. C. S. VENKATESWARAN: *The*

Raman Spectrum and Electrolytic Dissociation of Selenic Acid.—Marked changes in position, intensity, and character of the lines are observed during the transition from the solid to the liquid, and then to aqueous solutions. MAX BORN AND N. S. NAGENDRA NATH: *The Neutrino Theory of Light*.—There is no reason to introduce the spin of the neutrino, and the difference between the two kinds of neutrinos can be described in the same way as the difference between electrons and positrons in Dirac's theory of holes. M. L. N. SHARMA: *On the Error Term in a Certain Sum*. S. CHOWLA: *Pillai's Exact Formula for the Number $g(n)$ in Waring's Problem*. B. PADHY: *Pillai's Exact Formula for the Number $g(n)$ in Waring's Problem*. R. K. ASUNDI AND R. SAMUEL: *On the Band Systems and Structure of SiF* .—A new vibrational analysis of the results reported by Johnson and Jenkins. GURDAS RAM AND V. I. VAIDHIANATHAN: *The Design of Falls with Reference to Uplift Pressure*.—The uplift pressures under hydraulic works on porous foundations, such as are built at the falls in canals and rivers, have been determined. A method of obtaining the pressure distribution approximately by the application of theory has also been indicated. B. SUNDARA RAMA RAO: *Studies on the Anisotropy of Optical Polarisation Field in Liquids—Part III*.—In acetic acid the polarisation field becomes more and more anisotropic whereas in nitrobenzene it becomes more and more isotropic with increasing temperature. CH. V. JOGARAO: *Variation of Intensity of Scattered Light with Temperature*.—When the aggregate intensity is suitably separated, the density scattering is always found to increase with temperature as it should, whereas the orientation scattering sometimes increases as in benzene, and sometimes decreases as in nitrobenzene, acetic acid and formic acid. M. RAMANADHAM: *Refractivity and Magnetic Birefringence of Liquid Mixtures*.—