

behind the age, conservative in the highest degree. Science has arisen and established her claim to equality. We have long had the Republic of Letters; we now hail the Republic of Knowledge. The ceremony of to-day bears testimony to the growing power of Edinburgh University; her prominence as a teacher of one of the noblest of all professions, perhaps the one in which those who practise it devote gratuitously a greater part of their time and attention than the members of any other profession, is not likely to be lost. On the contrary, all evidence to-day leads to the opposite conclusion. She is to remain famous for her medical school, and is now also destined to increase her reputation as a scientific instructor through the possession of the increased facilities now provided. The physical laboratory and engineering school, which, with the cordial cooperation of the municipal authorities, have been so ably secured by the principal and the University Court, are the necessary tools which will enable her to extend her work in these important branches of knowledge. They mark an epoch in her long career, and are to testify to future generations that the officials in charge of her work in the beginning of the twentieth century were alive to the duty of keeping her abreast of the new knowledge, of enlarging the field of her activities, and of welcoming the development of the scientific and so-called practical courses, thus keeping her, true to her high mission, in the front rank in all branches. I heartily congratulate the University of Edinburgh upon to-day's acquisitions, from which I hope are to come worthy successors of Faraday, Lockyer, Becquerel, Curie, Rutherford, Rayleigh, Ramsay, Mendeléeff, Kelvin, Tait, and others, to give her such fame in science as the names of Hume, Carlyle, Dugald Stewart, Hamilton, Chalmers, Simpson, and others have already conferred upon her in other fields of knowledge.

AGRICULTURAL NOTES.

CONDENSED Vegetable Milk.—Mr. T. Katayama, a writer in a recent issue of the Bulletin of the Agricultural College, Tokyo (Bulletin, College of Agriculture, Tokyo Imperial University, vol. vii., 1, April, 1906), describes the preparation of condensed vegetable milk, a product which, though not yet in commerce, would appear to have possibilities for tropical countries. The Japanese prepare vegetable milk from soy beans by soaking, crushing, and boiling in water. The liquid obtained is said to be very similar in appearance to cows' milk, but it differs widely in composition. The average composition of soy milk is given as:—water, 92.5 per cent.; protein, 3.02 per cent.; fat, 2.13 per cent.; fibre, 0.03 per cent.; nitrogen-free extract, 1.88 per cent.; ash, 0.41 per cent. To this material Mr. Katayama added sugar and a little dipotassium phosphate, the latter to prevent protein separating out; he then evaporated the mixture, and obtained a condensed milk. This product is described as having a yellowish colour, an agreeable taste like cows' milk, but a slight odour of beans. It is recommended for culinary purposes as a cheap substitute for ordinary condensed milk.

Cherry Leaf Scorch.—Mr. E. S. Salmon, mycologist at the South-Eastern Agricultural College, Wye, directs attention (Journal, South-Eastern Agricultural College, Wye, No. 15, July) to a danger which threatens the cherry growers of Kent. For the past few years the cherry leaf scorch (*Gnomonia erythrostoma*) has been gradually obtaining a footing in the county. In 1901 Dr. Carruthers pointed out the dangerous character of this disease, but his warning, we are informed, was "wholly disregarded." During the past spring Mr. Salmon visited all the districts in which diseased trees were reported, and he publishes a map showing that leaf scorch now occurs in many orchards from Sevenoaks on the west to Selling on the east, and from Tunstall on the north to Pluckley on the south. It has thus already reached the borders of the Sittingbourne and Faversham districts, and with the next favourable season it will probably invade the valuable orchards in these important cherry-growing centres. The disease is easily detected. The young leaves are infected in spring, and in summer the leaves shrivel up and look as if they had been scorched. They do not fall off in winter, but persist until the following season, forming

plague centres from which the young leaves are infected as the buds open. The only thoroughly effective remedy is the collection and burning of dead leaves; it is a costly process, but by this means the disease was banished by Prussian fruit growers after it had devastated some of their best orchards. Mr. Salmon also recommends the use of Bordeaux mixture in spring to render the young leaves proof against infection, and he is experimenting with this mixture in orchards near Pluckley; but he remarks that unless growers cooperate in fighting the disease there is little chance of getting rid of it.

Prussic Acid in Fodder Plants.—In vol. i., part iii., of the *Agricultural Journal of India*, Dr. J. W. Leather gives some particulars about the occurrence of prussic acid in fodder plants. It is well known to the Indian ryot that a feed of green *jowari* (*Andropogon Sorghum*) occasionally proves fatal to cattle, while in recent years stock-owners in this country have now and again been startled by cases of poisoning arising from the use of imported beans. It is only within the past year or two that the cause of such mysterious cases of poisoning has been explained. Certain plants contain glucosides which, when acted upon by a particular enzyme, produce prussic acid. Of such plants Dr. Leather mentions, in addition to *Andropogon*, flax, the two common beans *Dolichos lablab* or *val* and *Phaseolus lunatus*, the Rangoon bean, and the tapioca plant. The ferment is present in the plant, but, except conditions favourable to its activity occur, no prussic acid is formed. Hence it happens that a food, which is usually quite wholesome, may suddenly develop poisonous qualities. Dr. Leather analysed some green *jowari*, which had been fed to cattle with fatal results, and found in it 1.25 grains of prussic acid per lb. of green fodder. Analysing the same crop a month later, he found that the poison had diminished to 0.75 grain. This is in accordance with the ryot's experience; he is most afraid of young *jowari*. The leaves were found to contain much more prussic acid than the stalks, and ten times as much as the inflorescence.

Artificial Manures for India.—In connection with the possible introduction of a sulphuric acid industry into India, Mr. F. G. Sly, I.C.S., contributes a note on mineral fertilisers to the *Agricultural Journal of India*. He quotes experiments which show that soluble phosphatic manures would be of great value in Bengal, and he indicates that a demand for such manures may arise in India before very long. The native sources of mineral phosphates are not particularly promising, but it is suggested that Christmas Island phosphate, which can be landed in Calcutta for about 50s. per ton, would supply suitable raw material for the Indian manufacturer of superphosphate of lime.

Agriculture in Egypt.—The bi-monthly Journal of the Khedivial Agricultural Society of Egypt has given place to a year-book, and if subsequent issues maintain the promise of the first number former readers of the journal will appreciate the change. The first (1905) volume of the new year-book, which has recently reached us, is a well-printed, well-illustrated royal octavo book of 277 pages. It comprises two sections, the first contributed by officers of the society, the second by members of the staff of the Khedivial School of Agriculture. The greater part of the volume is devoted to the cotton crop. The first paper, by Mr. F. C. Willcocks, deals in detail with the cotton-worm, the larva of the moth *Prodenia littoralis*, which appeared in Egypt about forty years ago, and for thirty years has done serious damage. The Government has now adopted stringent measures in the hope of ridding Egypt of this plague. All cultivators are required to notify its appearance, and to collect and destroy the eggs at once. The larva damages the plant chiefly by feeding on the under-surfaces of the leaves, but it also attacks the buds and young bolls. This insect is very prolific, and there may be seven generations in a season. In a second paper Mr. Willcocks gives a very complete account of the cotton boll-worm *Earias insulana*, which is the destructive boll-worm of Egypt as well as of India. For this pest no effective remedy has yet been found. The cotton cut-worm *Agrotis ypsilon* is also described and figured. The secretary of the society, Mr. G. P. Foaden, writes a general article on the selection of cotton seed, and directs attention to the methods in use in the United States of America. Of the

other contributions, the most important are those contributed by the society's botanist, Mr. W. L. Balls, on the physiology of a simple parasite, and the sexuality of cotton. The first paper gives an account of a damping-off fungus which produces a disease among seedlings known to the American cotton grower as "sore-shin." Mr. Balls attributes the failure of seedling cottons in Egypt chiefly to the attacks of this fungus. The actual damage done varies greatly in different seasons. Weather which is too cold for the young cotton plant is favourable to the parasite, and "sore-shin" is largely a question of temperature. Remedies are now being sought for, and it is suggested that careful attention to the seed-bed might prevent, or at least mitigate, the disease. Mr. Balls's second paper describes some cytological work undertaken as a preliminary to investigations on questions of heredity. The descriptions and drawings of the sex cells, of fertilisation, and of the seed should prove of interest and value to economic botanists engaged upon the improvement of the cotton plant.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Combined examinations for sixty-six entrance scholarships and various exhibitions at Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges will be held on Tuesday, December 4, and following days. Mathematics, classics, and natural sciences will be the subjects of examination at all these colleges. Forms of application for admission to the examination at the respective colleges may be obtained as follows:—Pembroke College, W. S. Hadley; Gonville and Caius College, the Master; King's College, W. H. Macaulay; Jesus College, A. Gray; Christ's College, Rev. J. W. Cartmell; St. John's College, Dr. J. R. Tanner; Emmanuel College, the Master, from any of whom further information respecting the scholarships and other matters connected with the several colleges may be obtained.

At a meeting of the master and fellows of Pembroke College, held on October 10, Mr. C. F. Russell, formerly scholar of the college, was elected to a fellowship. Mr. Russell was Bell scholar in 1902, and was bracketed fourteenth wrangler in the mathematical tripos, part i., 1904; he was placed in the second division of the first class in the mathematical tripos, part ii., 1905, and was Smith's prizeman in 1906.

The Gedge prize has been awarded to P. P. Laidlaw, of St. John's College, for his essay entitled "Some Observations on Blood Pigments."

Dr. Hobson, Prof. Larmor, Prof. H. Lamb, Trinity College, professor of mathematics at Victoria University, Manchester, and E. W. Barnes, Trinity College, have been nominated examiners for part ii. of the mathematical tripos in 1907, and Prof. Hopkinson and W. H. Macaulay, of King's College, examiners for the qualifying examination for the mechanical sciences tripos in the current academical year.

W. E. Dixon, of Downing College, and R. Stockman (Edinburgh), professor of materia medica and therapeutics in the University of Glasgow, have been nominated examiners in pharmacology, and T. S. P. Strangeways, St. John's College, and T. Ritchie (Edinburgh), examiners in general pathology for the first part of the third examination for the degree of M.B. in the current academical year.

Prof. J. A. Ewing, King's College, has been nominated an elector to the John Winbolt prize in civil engineering to be awarded in the year 1907; and Dr. Marr and Dr. J. W. Judd examiners for the Sedgwick prize.

Mr. J. J. Lister, fellow of St. John's College, has been nominated a member of the board of electors to the professorship of zoology and comparative anatomy until February 20, 1913, in succession to the late Prof. W. F. R. Weldon.

MR. J. F. M. DRUMMOND, Caius College, Cambridge, formerly Frank Smart student in botany, has been appointed lecturer in botany at Armstrong College, Newcastle-upon-Tyne.

THE annual general meeting of the Association of Teachers in Technical Institutes will be held at the Birkbeck College, London, on Saturday, October 27, commencing at 3 p.m. The chair will be taken by Mr. W. J. Lineham, president of the association.

THE Peking correspondent of the *Times*, in a telegram of October 21, announces the abolition of the old system of examinations in China. In partial substitution there will be held an annual examination in Peking of Chinese graduates educated abroad. This year all Chinese holding foreign diplomas were invited by the Board of Education to submit themselves for examination in the subjects they studied abroad. About fifty responded, of whom forty-two were admitted, twenty-three with Japanese degrees, seventeen with American, and one each with German and English. At the examinations nine were granted the Chinese doctorate, twenty-three the degree of Master of Arts, and ten were rejected.

THE Bristol Education Committee has placed the Castle Council Schools, embracing large buildings which accommodated more than a thousand children, at the disposal of the governors and principal of the Merchant Venturers' Technical College, Bristol, which was recently damaged seriously by fire. These schools are being fitted with the necessary lecture theatres, laboratories, and workshops with all possible speed, and, meanwhile, other institutions in Bristol are lending their lecture theatres and laboratories. Fortunately a large part of the newest machinery of the engineering department of the college, especially the experimental engines and dynamos, which cost more than 2500*l.*, have been saved, as they were placed in a separate building containing many of the college workshops, and situated at some distance from the one injured by the fire; moreover, the basement of the main building has suffered comparatively little, and in this are the mechanical and electrical engineering laboratories and the engineering workshop.

THE new agricultural college and research institute for Madras is now in course of erection. In 1905 a grant to the Presidency by the Government of India of 10,000*l.* per annum, which was subsequently increased to 20,000*l.*, added to the allotments made by the Government of Madras, removed all financial difficulty experienced by the Madras Agricultural Department, and will in time provide the necessary staff. The result of this improved financial position was the decision of Government to close the agricultural college at Saidapet, and establish a new college and research institute adequately equipped with laboratories and class-rooms with a suitable farm near Coimbatore. The staff will consist of an expert agriculturist as the principal of the college, a superintendent of the central farm, a Government botanist, and an agricultural chemist. Ultimately an entomologist and mycologist may be added to the staff, which will combine teaching with research work. The institution is to fulfil a two-fold purpose. Problems connected with the agriculture of the presidency will be studied in the laboratory and the field, while students will be given a general education in all branches of agricultural science. The farm will afford a field for experience and for a test of laboratory research, as well as a training ground for students, in the practical application of science to agriculture.

AN addition to the University of Edinburgh Union was opened on October 19 by Mr. Haldane, the Lord Rector. Mr. Balfour, the Chancellor of the University, presided at the ceremony, and in the course of a speech delivered in calling upon the Lord Rector, directed attention to the true functions of a university. No university, he said, can be described as properly equipped which merely consists of an adequate professoriate, adequate lecture-rooms, adequate scientific apparatus, which only satisfies the needs, exacting though they are, of modern science and modern education. Something more than that is required if a university is to do all that it is capable of doing for the education of the young men of this country. A university life which consists only of the relation between the teachers and the taught, between the professor and the student, is but half a university life. The other half consists of the