As to fine chemicals for analysis and for research, there are no figures available, but it may safely be said that there has been no appreciable production of these things in this country.

If we are ever to be in a position to supply ourselves and our Dependencies with the dyes, the drugs, and the rest of the fine chemicals required in our work, it will only be achieved after a careful review of the circumstances which led to the removal of the industries from this the country in which many of them originated, together with a determination to take to heart the lessons of the past.

After a review of these circumstances in which it is shown that it has not been due to inactivity on the part of scientific chemists, but to the ignorance and neglect of British manufacturers down to quite recent times, the author considered what ought to be done and what it is possible to do in this country to remove reproach from British chemical industry, and to render the Empire independent of supplies from foreign sources.

We need many first-rate chemists, a few engineers, plenty of capital, and some good men of business. A combination of these elements in due proportion is certain of success, and the time, though so unhappy for the world, is favourable for this enterprise.

Inasmuch as the functions of each and the best way of combining them have already been settled in practice on the Continent, is to be hoped that the ancient precept about being taught by the enemy—*fas est et ab hoste doceri*—will not be forgotten. For there can be no doubt that the principle acted on in all German chemical factories, namely, the employment of the best available scientific skill and the constant appeal to scientific research, has been the secret of their success.

In conclusion, two remarks only require to be made. The establishment of what will be practically a new industry in this country will require consideration and assistance from the State, if it is to survive the period of fierce competition which will follow the conclusion of the war. Encouragement is already promised to the dye industry, in the form of definite financial aid to be given by Government. But remembering that the colour-maker is dependent on the production of many chemicals, which represent intermediate stages in the processes which lead from the raw materials to the finished product, and that the production of these chemicals is naturally associated with other chemical manufactures, it is to be hoped that the temporary protection will be extended beyond the immediate field of the colour-maker.

The other remark may raise a smile on the part of those business men who are moved only by commercial considerations. There will be a great temptation when the war is over to resume former business relations with the enemy. The German chemical manufacturers have a powerful organisation and many years of experience behind them. Let them keep any markets they can retain outside the British Empire, but every man who cares for his country will surely demand that business at home shall be limited to British goods.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

EDINBURGH.—The chair of medicine and clinical medicine in the University has become vacant through the retirement of Prof. John Wyllie. With the exception of the years 1866 to 1868, when he was house physician to the General Hospital in Birmingham, Prof. Wyllie has lived his professional life in Edinburgh, where he filled many important positions as a physician, and attained a high reputation in medical circles. In addition to contributions to medical journals, he is known as the author of a book on "The Disorders of Speech," published in 1894.

As in all other universities the war has seriously depleted the classes in Edinburgh. The diminution is observable in all the faculties, but is particularly noticeable in the later years of the medical curriculum, in the third year of engineering science, and in the law classes. A considerable number of the junior staff of lecturers are also with the colours. To encourage students to offer themselves for service the University authorities have granted important privileges, so that when the war is over the studies may be resumed without serious loss of time. The great majority of the men who are attending classes are being drilled several times a week, and are receiving military instruction. The Indian students are being trained as an ambulance corps.

LONDON.—A course of nine advanced lectures on certain aspects of British ecology will be given at University College, with the exception of lecture 5, which will be given at the Botany Building, Imperial College of Science, Prince Consort Road, South Kensington, S.W., at 5 p.m. on the following dates:—December 10, Dr. E. J. Salisbury, "Woodlands"; December 17, Dr. W. G. Smith, "Grasslands"; January 14, Dr. C. E. Moss, "Unsolved Problems relating to Calcareous Vegetation"; January 21, Miss M. C. Rayner, "Some Aspects of Heath Vegetation"; January 28, Prof. J. B. Farmer, "Alpines"; February 4, Dr. E. J. Salisbury, "Determining Factors in Aquatic Distribution"; February 12, Prof. R. H. Yapp, "Fen Vegetation"; February 18, Prof. G. S. West, "The Occurrence and Distribution of Fresh-water Algæ"; February 25, Mr. A. D. Cotton, "The Algal Vegetation of the Salt-marsh and Seashore." The lectures are addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

SHEFFIELD.—Dr. W. MacAdam has been appointed to the post of demonstrator in public health, and Mr. T. Chetwood to the post of lecturer on hygiene in the training department.

MR. G. S. YUILL, of Yuills, Ltd., a graduate of Aberdeen University, has made a gift of 4000*l.* to the University, the interest upon this amount to be applied in furthering the study of chemistry.

IT is announced in *Science* that the United States General Education Board has granted 50,000*l.* to Goucher College, Baltimore, conditionally upon 150,000*l.* being raised by April 1, 1917. From the same source we learn that a fund of 12,000*l.* has been turned over to Amherst College by the alumni council. The disposal of the income from this sum is to be determined by the trustees and the council.

WE learn from *Science* that on November 19 the honorary degree of doctor of science was conferred by Brown University upon Prof. W. H. Bragg, of the University of Leeds, before the corporation and faculty of the University in special Convocation. Following the conferring of the degree Prof. Bragg delivered the last of four lectures on X-rays and crystals, which he has been giving as the first of the anniversary lectures to celebrate the one hundred and fiftieth anniversary of Brown University.

NOTICE is given by the Institution of Naval Architects that a scholarship, to be known as the "Institution of Naval Architects Scholarship in Naval Architecture," will be offered for competition among students of the institution in 1915. The scholarship, which is of the annual value of 100*l.*, and tenable for

three years, will be awarded in connection with the competitive examinations for scholarships, studentships, etc., to be held by the Board of Education in May, 1915, in naval architecture, pure mathematics, applied mechanics (materials and structures), and either applied mechanics (machines and hydraulics), or heat engines. Applications must reach the secretary of the Institution of Naval Architects on or before January 15.

AT the last meeting of the governors of the South-Eastern Agricultural College, Wye, the principal, Mr. M. J. R. Dunstan, reported that 110 students and thirteen members of the teaching staff, besides college servants, farm and garden employees, had joined the colours. The new college buildings have been completed at a cost of 12,500*l.*, towards which the Board of Agriculture has given 6000*l.*, whilst two grants, each of 500*l.*, have been made by a generous anonymous benefactor towards the completion of the research equipment, and these gifts have been met by equivalent grants from the Board of Agriculture. The probable financial position of the college, owing to the reduction in the number of students, was considered, and it was decided to bring the matter before the Government educational and agricultural departments before taking any definite steps to curtail the teaching or research work. A vacuum drying plant for experimenting on the drying of fruit and vegetables has been installed by means of a grant from the Board of Agriculture, and it is hoped that assistance may be forthcoming to continue the investigations into the economical feeding of dairy cows of which a third report has just been issued. Results which may prove to be of considerable practical value have been obtained from the hop-breeding experimental work.

THE report of the Commissioner of Education of the United States Bureau of Education for the year ended on June 30, 1913, has been received from Washington. It consists of two bulky volumes running to 931 and 700 pages respectively, and every department of American education is dealt with exhaustively. For the academic year with which the report deals, the bureau received reports from 596 universities, colleges, and technological schools in the United States. Ninety-four of these institutions are controlled by States or municipalities, and 502 are administered by private corporations. The number of collegiate and resident graduate students in these institutions of higher education was during the year 128,644 men and 73,587 women, as compared with 125,750 and 72,703 in the preceding year. These numbers show on analysis an increased attendance of 2·35 per cent. of college students in graduate and undergraduate courses, and a decrease of 11 per cent. in the number of preparatory students. The Commissioner points out in his introduction that in most instances high-school work can be done better and at less cost in the regular high schools than in the preparatory classes of colleges. The decrease in the number of students in the preparatory classes of colleges is due to some extent also to the more liberal practice of the colleges in accepting for admission work in subjects other than those heretofore required.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 3.—Sir William Crookes, president, in the chair.—M. de **Lange**: The thermophone—a new form of telephone.—Dr. G. S. **Walpole**: Hermann's phenomenon. At the boundary between two solutions of unequal specific conductivity a change of reaction is developed if a difference of potential be maintained between them. Alkali is liberated if the current passes from the better conducting solution to that not conducting so well; acid, if the current passes in the opposite direction. The amounts may be calculated from the potential gradients in the solutions on each side of the boundary, the time for which the difference of potential is maintained, the resistance constant of the vessel employed, the dissociation constant of water, and the known migration velocities of hydrogen and hydroxyl ions.

Zoological Society, November 24.—Prof. E. A. Minchin, vice-president, in the chair.—D. M. S. **Watson**: (1) Description of a new reptile from the Permian of the Cape Province, South Africa. Mr. Watson regards this as derived from a Cotylosaurian ancestor and as perhaps related to Araeoscelis and the modern lizards. A new genus is founded for the reception of the so-called *Proterosaurus huxleyi*. (2) The origin of the Chelonia. A number of reasons is given for supposing that they may be descended from some such form as *Eunotosaurus africanus*, Seeley. (3) The skulls of Bauria, Microgomphodon, and Sesamodon. The relation of the group with the Cynognathids is discussed, and a new skull of Lycosuchus, in which both the prevomers and vomer are present, is described.—F. A. **Potts**: Polychæta from the N.E. Pacific: the Chætopteridæ. With an account of the phenomenon of asexual reproduction in Phyllochætopterus and the description of two new species of Chætopteridæ from the Atlantic. The new species of Phyllochætopterus was found in branched tubes, each usually containing several individuals. The origin of these colonies each from a single individual is suggested by the frequent occurrence of worms in various stages of regeneration. An examination of these shows that autotomy first occurs in the middle region of the animal's body, and a complete animal is regenerated from each of the two parts. This phenomenon appears to be characteristic also of another new species of this genus from Plymouth, which lives in small colonies in branched tubes. Several points in the morphology of the Chætopteridæ are also discussed.—E. **Heron-Allen** and A. **Earland**: Evidence of purpose and intelligence on the part of Foraminifera.

EDINBURGH.

Royal Society, November 16.—Prof. F. O. Bower, vice-president, in the chair.—Dr. D. **Ellis**: Fossil micro-organisms from the Jurassic and Cretaceous rocks of Great Britain. The paper contained a study of fossil moulds from four localities—the Frodingham Ironstone of Lincolnshire, the Secondary rocks in the Island of Raasay (N.W. Scotland), the Dunliath ferruginous Limestone, and the Gault, near Folkestone. These supplied in order a fossil mould belonging to the Phycomycetæ, with abundant examples of hyphæ, sporangia, and spores; a fossil mould provisionally named Palæomyces α; a fossil Actinomyces; and three members of Bacteria, two Bacilli, and one Micrococcus. Evidence was given that these were genuine micro-organisms, and reasons were discussed why the organism in its lifetime had a chemiotactic affinity for iron.—J. M'Lean **Thompson**: The anatomy and affinity of *Deparia moorei*. The paper dealt with the anatomical features of the axis, leaf, and sorus. Comparison with *Deparia prolifera* showed an advanced type of leaf trace, the expansive lamina being possessed of a few pinnæ and a reticulate venation—suggesting an adaptation for life in moist shade. The sori were of normally marginal origin, but occasionally truly superficial sori appeared on the upper leaf surface in *D. moorei*. This in no way invalided the conclusion that it belonged to the series Marginales. The consensus of characters justified the rejection of