

reserve rooms for members of the Association, and have only partially succeeded. Dover being a sea-side resort, there has been a natural dislike on the part of owners of hotels and lodgings to offer to disturb those visitors who may possibly have come for a longer stay for the sake of members of the Association who may only wish to spend a week or so. There will, however, be accommodation available in Deal, Canterbury and Folkestone for those who cannot find rooms in Dover. It will be well, however, that intending visitors to the Dover Meeting should inform the local secretaries (E. Wollaston Knocker, C.B., and W. H. Pendlebury, M.A., Castle Hill House, Dover) of their intention, so that approximately the amount of extra accommodation may be known.

It has been usually the case that the secretaries of the various sections are accommodated at the same hotel to facilitate sectional arrangements. This year the Hospitality Committee has been able to arrange with the Head Masters and House Masters of Dover College to entertain the secretaries in the various boarding houses. Unfortunately, the accommodation is limited to the rooms usually occupied by the boys (each of whom has a separate bedroom to himself), so that it is impossible to take in secretaries accompanied by their wives. There will be a few other guests entertained by the Local Committee under the same conditions. The Masters of the various houses will act as hosts on behalf of the Hospitality Committee, and will look after the comfort of their guests. The College Masters will also give the first of the larger garden parties on Thursday, September 14. The Rev. J. N. Bacon has kindly undertaken to make a balloon ascent with objects similar to those which induced him to make an ascent at the Clifton College garden party. The situation of Dover with regard to the sea will doubtless add to the interest of such an ascent.

Lord Northbourne and Lord George Hamilton have kindly consented to allow members of the Association to inspect Betteshanger Park and Deal Castle respectively.

Owing to the fact that two of the days usually given up to excursions are required for the visit of the French Association to Boulogne and the return visit of the British Association to Boulogne, the number of excursions arranged for will be smaller than usual. The geologists and anthropologists have arranged a number of smaller excursions for the afternoons as usual, and these will, of course, not be interfered with. On the last day of the meeting (Wednesday) the Association is invited by the Dean and Chapter and Mayor and Corporation of Canterbury to pay a visit to that city to meet 200 members of the French Association, who will have previously been entertained to luncheon there. The Mayor and Corporation will entertain the British Association to tea. On the following day (Thursday) an excursion has been arranged to Rochester and Chatham Dockyard for those who do not care to go over to Boulogne. An opportunity will be given to visit the Agricultural College at Wye, near Ashford, which has been so successfully started by the County Councils of Kent and Surrey. The Principal, Mr. A. D. Hall, has invited members of the Association to pay the College a visit and inspect the experimental stations. It may be well to recall the fact that Wye College is especially included in the new University of London, though considerably outside the limit. For those members of the Association who visit Boulogne a most interesting programme has been arranged on the lines laid down in a former article (p. 181). The luncheon will be given by the civic authorities. The French Government has taken a great amount of interest in the gathering, and it is very likely that some prominent French statesman will attend to welcome the British Association in the name of the Government. In such case it is very likely that a similar compliment will be paid to the French Association on their visit to Dover. The French Government has also

given instructions to the various Mayors and Prefects of the districts, through which the British Association will pass, in the five days' excursion at the conclusion of the meeting, to take official notice of the tour. The motor-car exhibition arranged by the Mayor of Dover for the Tuesday afternoon has been declared by the Board of Trade an international exhibition, so that no patents will be invalidated by premature disclosure at the Dover show. The French Association intends to give a considerable amount of attention to the automobile.

The Mayor of Dover will give a *conversazione* in the Town Hall and a garden party in the Connaught Park in addition to the reception at the motor-car exhibition.

The programme of local arrangements will be completed in a few days, and it will then be possible to make a fuller statement of the entertainments prepared for those members of the British Association who may visit Dover.

W. H. PENDLEBURY.

"THE WEST INDIAN BULLETIN."

IT was on August 2 of last year that Mr. Chamberlain announced in the House of Commons the decision of the Government, based on the recommendations of the West India Royal Commissioners, to create a special Department of Agriculture for the distressed Colonies, to be presided over by Dr. Morris, of Kew Gardens, who had acted as scientific adviser to the Commissioners. Immediately the proposals were sanctioned by Parliament, active steps were taken to vigorously carry out the scheme. By the middle of September Dr. Morris had left for Barbados, which had been selected as the headquarters of the new establishment, and tours were at once undertaken to ascertain the requirements of the several islands. The result was the organising of a conference of the authorities on agricultural matters in the West Indian Colonies, each island sending delegates to attend the meetings, which were held, under the presidency of Dr. Morris at Barbados, in January last. On the first anniversary of the day on which the Colonial Secretary publicly set the scheme in motion there arrived in this country the first number of the *West Indian Bulletin*, the journal of the Imperial Agricultural Department for the West Indies, a publication which it is intended to supply gratis to all residents in the islands who ask for it. Its prototype is, naturally, the *Kew Bulletin*, but apparently it will not be issued at regular monthly intervals, only as occasion may require. The first part is a double number of 141 pages, devoted almost wholly to the proceedings at the agricultural conference of January already referred to, the subjects dealt with being primarily of interest to the Colonists. In addition to the presidential address, dealing generally with the objects of the new Department, there were papers by Prof. d'Albuquerque on "Sugar-cane manurial experiments," and "The teaching of agricultural science at colleges"; by Mr. Bovell on the "Field treatment of the diseases of the sugar-cane," and the "Cost of growing sugar-canes in Barbados"; by Mr. Fawcett on "Agricultural instruction in agricultural schools in Jamaica," "Practical field instruction in Jamaica," and "The prevention of the introduction and spread of fungoid and insect pests in the West Indies"; by Mr. Francis Watts on "Central factories," Mr. William Douglas also dealing with the same subject. The Rev. William Simms discussed "Agricultural education"; Dr. Alfred Nicholls, C.M.G., "Suggestions for agricultural development in the Leeward Islands"; Mr. Hart, "Improvement in agricultural methods in the West Indies"; and Prof. Carmody made "Brief suggestions on Colonial industries." The bare recital of the titles of the papers will show what a wide field of investigation and action was opened out, and it behoves all who are interested in the future welfare of

these unfortunate Colonies to secure this first number of the *West Indian Bulletin*, carefully study the array of facts contained therein, and see whether it is not possible to do more for reviving the ancient glories of the islands by personal energy, and the adaptation of modern methods of culture and preparation for the markets of the world, than by any possible benefits that can accrue from abolishing the sugar bounties by France and other countries, or the imposition by us of countervailing duties in favour of our own Colonies. While it is extremely doubtful whether the removal of the bounties would benefit the West Indian sugar planters to any appreciable extent, it seems almost absolutely certain that if they resolutely determined on keeping abreast of the times in management, machinery, selection of plants, &c., instead of being content with what was thought good enough by their fathers and grandfathers before beet-sugar entered into the competition, they would soon see an end to the worst features of that perpetual millstone—the depression in the West Indian sugar industry. As Dr. Morris said in his opening address, “The sugar industry in the smaller islands will never be in a satisfactory condition so long as the processes of crushing the canes and manufacturing the sugar remain as at present.” H.

SIR EDWARD FRANKLAND, K.C.B., F.R.S.

NEWS of the death of Sir Edward Frankland will come as a surprise as well as a shock to all his friends, and will be received by the whole scientific world with feelings of the deepest regret.

The end came on Wednesday, August 9, in Norway, where Sir Edward had been in the habit of spending his summer holidays for many years. Born at Churchtown, near Lancaster, on January 18, 1825, he had entered upon his seventy-fifth year, but his upright, spare and active figure until quite recently gave the impression of a much younger man. It was noticeable, however, that he had aged in appearance perceptibly after the death of Lady Frankland (his second wife), which occurred rather suddenly in the spring of the present year.

Frankland received his early education at the Lancaster Grammar School, and subsequently became one of the first science masters at Queenwood College. From Queenwood he proceeded to Germany, and studied chemistry at Marburg and at Giessen. Returning to England he was appointed in 1851 first professor of chemistry at Owens College, Manchester, and there he remained for about seven years till his removal to London in 1857 to take charge of the chemical department in St. Bartholomew's Hospital Medical School. In 1863 he was appointed Fullerian Professor of Chemistry in the Royal Institution, and in 1865 he succeeded Hofmann at the College of Chemistry. The latter chair, which was soon afterwards transferred to the united School of Science and Royal School of Mines at South Kensington, he held till his retirement in 1885. Frankland was for many years a regular attendant at the meetings of the Chemical Society, and was president in 1871–72. His scientific work was rewarded also by honours from many foreign universities and academies, including the Institute of France, of which he was a corresponding member. For the last five years he held the office of Foreign Secretary of the Royal Society, and in 1894 he received the Copley Medal.

Sir Edward received the honour of knighthood in 1897, on the occasion of Her Majesty's Jubilee; but this, strange to say, was conferred, not in recognition of his very eminent services to chemical science, but in his more ordinary professional capacity as water analyst to the Home Department, having been for more

than thirty years responsible for the annual reports to the Local Government Board on the quality of the metropolitan water supply.

Frankland's title to fame rests securely upon his important experimental investigations in pure chemistry accomplished chiefly within the twenty years from 1848 to 1868, and upon the impetus which was given to theoretical chemistry by the promulgation of his views concerning the combining capacity, or valency as it is now called, of the elements, which he derived from the results of his experimental work. In the years following 1840 the views of Liebig and of Dumas as to the nature of the carbon compounds, usually spoken of as organic, attracted the attention of the whole chemical world, and efforts were especially directed to the problem of how to isolate the compound radicals which they were supposed to contain in the form of oxide, hydrate, chloride, bromide, iodide and so forth. The radical of common alcohol was naturally one to receive early attention, and to this subject Frankland devoted his earliest efforts. He was successful in 1848 in isolating a substance to which he and all the chemists of that day gave the name *ethyl*, in the belief that it was really the radical of which common alcohol was the hydrate and common ether the oxide, and which was present as the characteristic basis of all the numerous compound ethers or ethereal salts then known. Though in strictness an error, long since corrected by applying the law of Avogadro, was involved in this assumption, the experimental method employed led to the further discovery of the remarkable series of compounds known as organo-metallic, and to the subsequent recognition of the varying power possessed by the metals and metalloids of uniting with alcohol radicals, with the halogens and with oxygen. The recognition of this diversity of combining capacity, and of the fact that each elementary atom possesses a maximum capacity beyond which its power of chemical union is incapable of extending, supplied the basis of the modern doctrine of valency and of all the consequences which follow from the idea of the orderly linking of atoms, afterwards developed by Kekulé into the theory of structure, upon which the whole system of organic chemistry is at the present day established.

At a later period Frankland pursued investigations in the then new and always difficult department of synthetic chemistry. In this he was associated for a time with Mr. B. F. Duppa.

Among others of his researches must be mentioned his experiments on the influence of pressure upon the luminosity of flame. These resulted in a theory of luminosity which for many years divided the favour of chemists and physicists with the older theory of Davy, according to which the luminosity of hydrocarbon flames, at least, is attributed to the presence in the flame of incandescent solid particles. Frankland's theory pointed to the effect of density in the ignited vaporous constituents of luminous flames.

Reference must also be made to the protracted and laborious study of gas and, especially, water supplies, which occupied so many of the later years of his life. Having been appointed a member of the Royal Commission on the Pollution of Rivers and Domestic Water Supply in 1863, he continued henceforward to give close attention to this important subject, and if his analytical methods and his conclusions were not universally adopted, he remained to the end of his life the most eminent authority on the chemical examination of water.

Sir Edward Frankland left several sons and daughters, among whom his eldest son, Dr. Percy Faraday Frankland, F.R.S., professor in the Mason University College, Birmingham, is distinguished as a scientific chemist.

The funeral will take place at Reigate on August 22.