

the analytical work which has been carried out to determine the chemical composition of marine algae brings out clearly how incomplete and scrappy is our knowledge of the chemical composition of these plants, and how untrustworthy and unscientific is much of the work which has already been done.

Prof. Sauvageau reviews what has been done in France, Britain, and the United States during recent times, and especially during the past thirty years, in the analysis of seaweeds, and he is specially severe on some of his own countrymen for their ignorance of botanical nomenclature and for the contempt with which they treat natural science, as shown by their failure to learn the rudiments of the language of botany before undertaking to deal with a botanical subject. Much of this criticism is just, and some of the examples given of the use of out-of-date and inexact nomenclature are sufficiently serious to show that it was necessary. While thus dealing faithfully with his own countrymen, Prof. Sauvageau recognises that some chemists have taken the trouble to identify with sufficient care the species which they have analysed. Thus he says that "the accuracy with which Stanford names the plants studied inspires more confidence in the reader than the uncouth appellations of Allary." He also recognises that American workers like Wheeler and Hartwell have taken care to obtain competent assistance in identifying the species they have examined.

At the same time Prof. Sauvageau appears to underestimate the difficulty in which the careful chemist who wishes to identify and name his species correctly sometimes finds himself. He himself offers a good illustration of this difficulty in his reference to the present writer's recent work on the composition of five of our commonest seaweeds collected on the coast of Scotland. Two of these belonged to the genus *Laminaria*, and are similar both in their appearance and structure and in their habitat. There is no difficulty to one who takes the trouble to make himself familiar with them either in distinguishing these species, or in recognising from Prof. Sauvageau's own description that what is called in my papers *L. digitata* is what he calls *L. cloustonii*, and that what I analysed under the name *L. stenophylla* he calls *L. flexicaulis*. But standard works of reference which were consulted were not agreed as to these names, which I used only after reference to a distinguished botanical colleague; and to make as certain as possible that there should be no mistake as to what species were intended, a standard work on seaweeds in accordance with which these names were used was referred to in one of my papers. Nevertheless, Prof. Sauvageau writes:—"His *L. stenophylla* is probably a mixture of that which English botanists call *L. digitata* (*L. flexicaulis*) and *L. stenophylla*, that being a close ally, if not a variety, of *L. flexicaulis*." He himself does not appear to be clear either as to the nomenclature of English botanists or as to the species which were identified with so much care. He can scarcely expect the chemist to do more than accept the best botanical guidance to be obtained on a point of this kind where, he admits, the practice of botanists is not uniform.

Another criticism which Prof. Sauvageau offers of the work of chemists is also valuable, and requires careful attention from the chemist, but again one cannot help thinking he would have been more effective if he had not attempted to press his criticism too far. He points out that if the analyses are to have a scientific, and not merely an industrial, value, not only should species be properly identified, but also samples collected for analysis should be clean and biologically pure, and obtained, if possible, from

the actual habitat, with a careful record of the season, the condition of growth, and the state of the plants, whether fertile or sterile. All these are important points which have too often been neglected. The large common seaweeds are frequently garnished with a great variety of other organisms, both animal and vegetable, making it difficult to procure even a reasonably pure sample. In some cases these foreign organisms can be removed, but it is generally difficult to remove them entirely. It also introduces errors, as great in many cases as those which are being avoided, if attempts are made to wash the samples, as compounds which properly belong to them are also removed in the wash-water. All that one can do is to collect reasonably pure samples and to pick off all the foreign organisms which can be distinguished. In many cases, however, the chemist was not attempting to analyse a pure botanical species, but to determine the composition of the impure substance used for some industrial purpose, such as the drift-weed which is washed up on the beach, and used as manure or for kelp-burning. The value of such analyses is limited by the object in view.

Prof. Sauvageau has performed an important service in directing the attention of chemists to the precautions which they require to take when they enter on the systematic study of the composition of seaweeds or of any other species of plant. Our knowledge of the composition of seaweeds is still quite rudimentary, and very valuable work might be done in this field by chemists with a competent knowledge of the botany of seaweeds, or working in collaboration with botanists who would collect and identify the samples for analysis. The recorded analyses show wide variations in the composition of seaweeds of the same species, and Prof. Sauvageau is inclined, on account of this, to cast doubt on the samples or on the conditions under which they were collected. In the present state of our knowledge this is scarcely justified. Numerous well-authenticated cases of similar wide variations in composition are found in the case of other plants, even when they appear to be grown under similar conditions in the same locality and are collected at the same stage of growth.

JAMES HENDRICK.

ITALIAN CLIMATOLOGY.

TWO more contributions by Prof. F. Eredia to our knowledge of the climate of Italy have recently appeared, one dealing with the normal mean values of annual rainfall in Italy, and the other with diurnal temperature variation in Sicily. In the first paper, "Le Medie normali della quantita' di Pioggia in Italia" (*Giornale del Genio Civile*, anno lvi., 1918), the mean values for each calendar month are shown for nine well-distributed cities on the basis of the fifty-year period 1866-1915; and it is calculated that the values are correct to within 5 mm. for the rainier winter months and 9 mm. to 12 mm. for the summer months of smaller rainfall and more irregular distribution. In northern or continental Italy, as exemplified by Milan and Turin, the seasonal variation of rainfall is not prominent, but the wettest periods are early summer and autumn, the highest figures being for May and October. In peninsular Italy the typical Mediterranean feature of wet winters and dry summers is conspicuous, especially in the extreme south. Thus at Palermo the figure for December, the wettest month, is 108 mm. (4.3 in.), and for July, the driest, only 7 mm. (0.28 in.). The wettest city quoted is Genoa, on the Ligurian coast, where the wettest month, October, has 190 mm. (7.6 in.), and the driest,

July, 47 mm. (1.9 in.); and here also the winter, as a whole, is considerably rainier than the summer.

The other paper, "La Variazione Diurna della Temperatura a Catania e a Messina" (*Bollettino dell'Accademia Gioenia di Scienze Naturali in Catania*, fascicolo xlv., Luglio, 1918), shows that, excepting the months of June, July, and August, which have practically identical mean temperatures at Messina and Catania, ranging between 22° and 26° C. (72° to 79° F. *circ.*), the latter place is distinctly colder. The greatest difference is in January, when the mean for Catania is 9.5° C. (49.1° F.), and for Messina 11.6° C. (52.8° F.). The difference is attributed to the fact that for the major portion of the year Mount Etna, being snow-clad, exerts a chilling effect upon the air at Catania, rendered the more marked from the circumstance that the prevailing wind direction is N.W. at both places. Thus the wind at Messina blows straight in from the warm sea surface, but blows down on Catania from the snows of Etna. The mean diurnal range of temperature is greater at Catania in every month of the year except August, the greatest difference occurring in November. In this month the daily range is 5.1° C. at one place and 2.9° C. at the other, or a difference of 2.1°. The regulating action of the sea is thus more marked at Messina. At both places the diurnal range of temperature is small, but, as is very generally the case, greater in summer than in winter.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Lord Moulton, of Christ's College, honorary fellow of St. John's College, has been appointed Rede lecturer for the present year.

Mr. A. Hopkinson, of Emmanuel College, has been appointed additional demonstrator of human anatomy for five years.

Capt. J. T. Saunders, formerly junior fellow of Christ's College, has been elected to a senior fellowship, and Capt. C. G. Darwin, lecturer in mathematics at the college, to a junior fellowship. Capt. Saunders is University demonstrator of animal morphology, and Capt. Darwin was bracketed Fourth Wrangler in 1909.

OXFORD.—By the death of the late Provost of Oriel, Dr. C. L. Shadwell, the University has lost a well-known and characteristic figure. Though but slightly in sympathy with many of the movements and aspirations of present-day Oxford, Dr. Shadwell gained universal respect by the acutely legal turn of his mind, by his remarkable business ability, and by the devotion with which he threw himself into the public affairs of both University and city. A life-long advocate of education on a wide and general basis, he yet found time and opportunity to become a master in many departments of curious and specialised learning, often surprising his hearers by the sudden display of some unusual piece of erudition. These *dicta* were delivered with a characteristic incisiveness, and not without a suggestion of latent and kindly humour. Amongst his accomplishments was a wide and thorough knowledge of botany, which he turned to account as a curator of the botanic garden. For the last four years he had been living in retirement, but his loss will be deeply felt by his own college and by the University at large.

On February 18 a decree was introduced by the Warden of Wadham providing for the acceptance by Convocation of an offer by the trustees of the Christopher Welch benefaction to provide 450*l.* a year each for five years for a lecturer in clinical physiology and in economic zoology respectively. Mr. H. C. Bazett, fellow of Magdalen College, and Mr. N.

Cunliffe, Trinity College, Cambridge, were appointed lecturers, these being the first appointments made under the Welch bequest.

At the same meeting of Convocation the report for 1918 of the Committee for Rural Economy was presented, recording, amongst other items, that a farm of 355 acres at Sandford-on-Thames had been secured on lease for the purpose of providing facilities for experiments and demonstrations in connection with the work of the School of Agriculture and Forestry.

THE Regional Association—an organisation for the promotion of regional research—is arranging for a vacation meeting at Malvern from April 9 to April 16. All further particulars can be obtained from the hon. secretary, Mr. Geo. Morris, 7 West Road, Saffron Walden.

WE learn from the *Times* that at a meeting of the Edinburgh University Court, on February 18, a letter was read from the Treasury intimating that an advance of 7000*l.* by way of a grant from the Development Fund would be made to the University in aid of the endowment of a chair of forestry on the condition already accepted by the University—that the remaining 7000*l.* required was provided by the University from other sources. The Court resolved to institute a chair.

SIR ERNEST CASSEL has placed in the hands of trustees a sum of 500,000*l.* for the following educational purposes:—(1) The promotion of adult education in connection with the Workers' Educational Association or any other association or body approved of by the trustees. (2) The establishment of scholarships for the encouragement of the education of workmen or their sons and daughters. (3) The promotion of the higher education of women by the assistance of colleges for women. (4) The promotion of the study of foreign languages. (5) The establishment of a faculty of commerce in the University of London in such terms as may be approved by the trustees. The trustees are Mr. Asquith, Mr. Balfour, Miss Philippa Fawcett, Mr. H. A. L. Fisher, Lord Haldane, Sir George Murray, and Mr. Sidney Webb; their secretary is Mr. A. E. Twentyman, 6 Stanhope Gardens, Highgate, N.6.

ANNOUNCEMENT is made that the general committee of Lloyd's Register of Shipping will grant the following scholarships for the study of naval architecture and marine engineering:—Three scholarships in naval architecture at Glasgow, Durham, and Liverpool Universities, tenable for three years; three scholarships in marine engineering at the University of Liverpool, tenable for three years; and two scholarships in marine engineering in connection with the Institute of Marine Engineers, tenable for two years. The regulations governing the scholarships have been amended in order that the field of competition may be widened. Before 1915 five scholarships were competed for each year, and were of a value of 50*l.*; the committee has resolved to increase this amount to 100*l.*, and since no scholarships have been awarded during the past three years, and also that probably there will be a larger number of candidates offering themselves than has hitherto been the case, to authorise the grant of more than one scholarship to each institution for the present year, provided the authorities can recommend that such a course can be adopted with advantage. Full particulars of the qualifications and details of the subjects of examination can be obtained from the Secretary, Institute of Marine Engineers, 85-88 The Minories, Tower Hill, London, E.1.