

the native English trees, and also a large number of foreign species, finding the conditions suitable for their growth. How long these conditions will remain favourable is problematical, a remark which applies also to Mr. Whitton's goodly list of some 300 species of flowering plants given in chapter vi.

The geology of the district is necessarily "tame," but since Mr. F. W. Rudler is responsible for that chapter (chap. ii.), it is perhaps scarcely necessary to say that it will be found both interesting and instructive. The only regret is that the author did not "let himself go" more freely in discussing some of the generalisations which have of late years been based upon the detailed study of gravels and superficial deposits generally. In connection with the climate of Hampstead (chap. iii., by Mr. E. L. Hawke), it is of interest to note that the sunshine record, as compared with that of the city, more nearly approaches that of Berkhamstead, which is tolerably clear of London influence. Thus the total number of hours of bright sunshine during 1910 was 1372, as compared with 1348 at the Hertfordshire station, 1183 at Camden Square, and 993 at Bunhill Row. So much for the effects of atmospheric pollution in the City of London! Bird-life (chap. vii.) is dealt with by Mr. Herbert Goodchild, who gives a very clear account of the particular conditions favourable and unfavourable to an avifauna. One of his observations is very significant: "Adjoining the heath are several private woods, a form of ownership which tends to the preservation of species that might otherwise be lost to the district, since in such woods and coppices the birds are safer from molestation. As some of these woods adjoin the public domain, an observer may see on the latter many species of birds that might be driven away if all the woods were public." The writer of this notice has long ago come to the conclusion that the preservation of open spaces solely from the point of view of the "recreation and enjoyment of the public" is in many cases quite the reverse of a boon from the point of view of the naturalist. Mr. Goodchild is, of course, an advocate of the study of bird-life by the modern method—i.e. the field-glass and camera, and not by the gun. It is fortunate for the district, also, that it comprises the Brent reservoir, and that that well-known observer Mr. J. E. Harting was a former resident, and kept observations of the birds for many years.

The chapter on mammals, fishes, and reptiles, by Mr. Hugh Findon, will also surprise many readers who are unprepared for the survival of such a number of species within sight of the metropolis. The existence of badger-earths, still apparently tenanted, is certainly remarkable, but here, again, the preservation of this notoriously shy animal is due to the inclusion of the earths (a figure of which we reproduce) in the private grounds of Ken Wood, the owner of which estate has always been a sympathetic conservator of this interesting denizen. Dr. O'Brien Ellison's chapter on insect-life serves to emphasise the complaint so frequently made by entomologists in this

country that local collectors so generally concentrate their attentions upon the Lepidoptera to the neglect of other orders. There are surely more than twenty-seven species of Coleoptera in the district, to say nothing of Hymenoptera, Diptera, and Microlepidoptera. The list of Lepidoptera, by the way, is marred by a number of misprints. It only remains to add that there are chapters on molluscs and on pond-life by Mr. Hugh Findon and Mr. James Burton respectively.

The Hampstead Scientific Society has certainly done good service in publishing this volume, which is a typical specimen of the kind of work which local societies should undertake. For a district such as that dealt with—viz. within the three-mile radius from the flagstaff on the summit of the heath—a book like that before us is not only of immediate utility, but is certain to acquire increased value as time moves on and the influence of urbanisation becomes more and more pronounced. Already many of the species recorded are taken from old publications, and are now extinct. The general impression produced by the perusal of the volume is one of marvel at the persistence of so much that is "natural" in the area described.

R. M.

PROF. HUGH MARSHALL, F.R.S.

BY the untimely death of Prof. Hugh Marshall, which took place in London on September 5, chemistry has lost, at the early age of forty-five, one of the nowadays comparatively few prominent men who devoted their energies to the investigation of subjects connected with the inorganic and mineralogical branches of the science, and the University of St. Andrews an active and useful member of the professorial staff of Dundee University College.

It is not a disparagement to say that Dr. Marshall's most brilliant discovery—that of the persulphates, in 1891—was due to one of those fortunate chances, not infrequent in science, where experiments designed to elucidate a certain definite question lead to some new discovery of a wholly different description and often of much greater consequence; for, no sooner was the discovery made than its author was quick to discern that substances of far-reaching importance had fortuitously presented themselves to him and to prosecute their examination with exceptional vigour and success. The subject under immediate investigation was the oxidation of cobalt salts by electrolysis in the then comparatively little employed "divided" electrolytic cell, and on passing a current of electricity through "a fairly acid solution of cobalt and potassium sulphates," with a view to prepare potassium cobalt alum, small crystals slowly separated, which proved on analysis to consist of potassium persulphate. The discovery of the persulphates at once brought Dr. Marshall's name into prominence, while the assiduity and skill with which he continued his examination of them speedily marked him as a rising inorganic chemist.

Having a distinct leaning towards mineralogy and crystallography, he devoted a considerable amount of study to these subjects also, and published several useful crystallographical papers; but inorganic chemistry claimed most of his attention, and his later papers as a rule savoured more or less of persulphates in some of their varied interactions. Thus, either alone or in collaboration with others, he published papers describing the action of persulphates on iodine, silver salts, thio-sulphates, &c.; and the neat modification of Crum's test for manganese, in which potassium persulphate is employed as oxidising agent instead of lead peroxide, was devised and elaborated into a quantitative colorometric method by him. Other papers dealt with thallic sulphate; rubidium, caesium, and thallium persulphates; quantitative analysis by electrolytic methods; succinic acid and succinates; the compound of iodine with thiocarbamide, &c.

In addition to his chemical investigations he found time to examine some technical subjects, and his work upon the burning of mixtures of air and light hydrocarbon vapour led to the perfecting of the "Petrolite" safety incandescent lamp, for which he was awarded prizes by the Edinburgh Association of Science and Art, and the Royal Scottish Society of Arts. He also devised a simplified form of Bunsen burner which was particularly suitable for use by beginners in laboratory practice. The Keith prize and gold medal for the period 1899-1901 was awarded to him by the Council of the Royal Society of Edinburgh for his researches on persulphates. He was elected to fellowship of the Royal Society in 1904, and to the chair of chemistry in Dundee in 1908. With, to all appearance, many years for good work still before him, Dr. Marshall was a man whom inorganic chemistry could ill afford to lose.

LEONARD DOBBIN.

NOTES.

REUTER'S Agency is informed that Sir David Bruce will leave England on November 1 for the purpose of concluding his sleeping sickness investigations in Central Africa. He will be accompanied by Lady Bruce, who is herself a member of the Commission. Sir David and Lady Bruce will sail in the *Edinburgh Castle* from Southampton, and will proceed to Cape Town, whence they will travel by train to Beira. From that place they intend to go up the Zambesi and Shire rivers to Lake Nyasa.

The Paris correspondent of *The Times* reports the death of the toxicologist, Dr. Jules Ogier, at sixty years of age. Our contemporary gives the following particulars of Dr. Ogier's career:—After some years' work with Berthelot, during which period his writings on arsenic and other poisons attracted considerable attention, he was appointed director of toxicology at the Prefecture of Police, where his work was of the greatest value to justice. He planned most of the large water systems in France, and his labours in connection with the purification of drinking water have been of great service to public health. He was

in a way the creator of modern toxicological chemistry, and his many works include a treatise which has become a classic in that branch of science.

THE seventeenth annual autumn foray of the British Mycological Society was held at Haslemere on September 22-27, the Haslemere Educational Museum, founded by the late Sir Jonathan Hutchinson, serving as headquarters during the meeting. A well-arranged programme of excursions was planned by Mr. E. W. Swanton, and a large number of fungi were collected, including many rare and interesting forms. The mornings were generally devoted to the examination and arrangement of specimens, some of the most noteworthy of which were:—*Rhizopogon rubescens*, *Hydnum melaleucum*, *H. Queletii*, *Sparassis laminosa*, *Clavaria formosa*, *Cortinarius bolaris*, *Mycena crocata*, and *Sclerotinia baccarum*, and also the Mycetozoa, *Licea pusilla*, *Hemitrichia clavata*, *Oligonema nitens*, and *Diderma simplex*. On Wednesday evening, September 24, Mr. A. D. Cotton (president for the year) delivered an address entitled "Suggestions as to the Study and Critical Revision of Certain Genera of Agaricaceæ," pointing out the urgent need of critical work, and emphasising the diagnostic value of certain microscopic characters. Other members contributed papers, namely, Mr. F. T. Brooks, on pure cultures of several Basidiomycetes and Ascomycetes; Prof. Buller, on the hymenium-structure in Hymenomycetes; and Mr. J. Ramsbottom, on the history of the classification of Discomycetes. In passing a vote of thanks to the trustees of the museum, the hope was expressed that the scientific and educational work hitherto carried on there would be continued, and that it would be possible to establish the museum upon a permanent basis. The officers elected for 1914 were:—President, Prof. A. H. R. Buller; vice-president, Miss G. Lister; honorary secretary and treasurer, Mr. Carleton Rea; the localities for the spring and autumn meetings being the Forest of Dean and Doncaster respectively.

At a conference held on September 19 in the rooms of the Linnean Society, Burlington House, Dr. A. B. Rendle, F.R.S., gave an account of the inception and activities of the plant protection section of the Selborne Society, under the auspices of which the meeting had been called, and outlined the various causes at work tending to the diminution or extermination of native plants in Britain—the building over of suburban and rural districts, drainage of marshes and bogs, smoke pollution, excessive collecting of rare plants by botanists and their agents, the wholesale digging up of both rare and common species by hawkers, &c. A brisk discussion followed regarding the proposed remedial measures for the preservation of the British flora; and though this was marked by considerable divergences of opinion, it was generally agreed that on one hand much remained to be done in the way of arousing public interest in the matter, while on the other there was much to be said for the introduction of legislation which should secure at least the same degree of protection and scheduling of plants as that afforded to bird-life by the Wild Birds Protection Acts. Several speakers pointed out