

ago than by reading his "Oxford Correspondence of 1903" (Blackwell, Oxford; Simpkin, Marshall and Co., London) between a college tutor and one of his pupils whose eyes are opened to the meaning of research by meeting a Zürich Professor in the Long Vacation. Warde Fowler's opinions and the long experience on which they were based appear in the charming letters of the tutor. We owe it to him and many others like him in this respect that the years since 1903 have brought a steady growth in the amount of original work and in the significance attached to it by the University.

In the brief space available I do not propose to say more of Warde Fowler's writings, excellently described in the *Times* of June 16, than just this—that he brought to his classical work the spirit of the naturalist, always seeing through the beautiful veil of literature to the everyday human lives and interests that lay behind, and as he delighted in them himself, so he made them a delight to others.

He was a most interesting and arresting lecturer, and had the supreme gift of selecting and describing an observation so that it both illuminated and fixed in the mind some far-reaching conclusion. No one could forget that the lines of bird-migration are determined, and may be varied, by sight and memory, after hearing him tell of the misty autumn day when he stood on the chalk cliff near Swanage and watched the little bands of swallows arriving from the west and flying round the English coast to the north of the Isle of Wight, on their eastward journey, to cross near Dover; and lo! as he stood watching, there suddenly arrived a band which acted very differently, circling up into the air and darting directly eastward across the sea; and then, following their flight, he saw for the first time what they had seen, that the mist had lifted and the Needles were in sight. Then, and then only, had they taken the direct and shortest eastward route along the chalk midrib of the Isle of Wight.

Or he would tell of the thrush that, in the middle of its song, saw one of its young carried off by a cat, and expressed its emotions by singing more loudly and passionately.

Or it was the want of attention in observation that was illustrated by the fishermen, he being one of them, who, after their day's sport was over, began discussing the position of the fins of the trout, and, unable for the life of them to remember the arrangement, paid a visit to the larder to find out!

It is interesting to compare with this experience the unconscious yet keen attention and the sure memory which come into play when man observes his fellow man. And this is to be expected. There have been long periods when the recognition of a man by his shoulder or head seen from behind, or by his gait, has meant the difference between life and death.

The memories I have recalled belong to the early days of the Ashmolean Natural History

Society of Oxfordshire, and probably all are more than thirty years old. The charm and arresting personality of the speaker have left them clear and bright.

E. B. P.

R. E. DENNETT.

MR. R. E. DENNETT, who died in London on May 28 at the age of sixty-four, was a student of the religions, languages, and customs of the indigenous races of West Africa, and his work was marked by great ability and originality. Son of an Anglican clergyman of unusual individuality—a Devonshire man—Mr. Dennett was born at Valparaiso, and had his early education at Marlborough School. He went out to West Africa in his early twenties, and he spent more than forty years in Nigeria and in what are now the French and Belgian Congo territories. Comparatively early in his career he was brought into association with that remarkable woman, Mary Kingsley, and his mind, already sympathetically disposed towards the native races, received an additional powerful impetus in the same beneficent direction. Thereafter he bent a great part of an intellect naturally strong to the attempt to interpret the character and institutions of the Africans to the reading public in Great Britain.

Mr. Dennett had special opportunities for observation, for in turn he was trader, explorer, and official, a combination not often found in one person. It was (indeed, still is) work highly necessary, for it is probably safe to say that the main impression left upon the minds of most people in Britain as the result of reading the accounts of the Stanley expeditions was that all Africans are absolutely primitive and all at the same stage of development. Nothing could be more grotesquely inaccurate, and Mr. Dennett's careful, patient, above all sincere and sympathetic, researches did much to make clear the truth, which is, of course, that the greater facts of man's life are represented among Africans by institutions and observances much the same in root significance as those of Europeans, but in some respects less highly developed. He believed firmly that the most hopeful course in British West Africa was, while suppressing accompaniments of native rule which are inconsistent with individual rights, carefully to preserve and support the main body of African custom, which he held to be essentially just and based upon the life and needs of the people. That is to say, he wished the African to be governed by his own people in his own way, the European Powers keeping the peace while the native races gradually advanced along their own lines.

Of several noteworthy books that by which Mr. Dennett will best be remembered is probably "At the Back of the Black Man's Mind," a close and penetrating study of the great subject indicated by the title. Others are: "Seven Years among the Fjort," "Nigerian Studies," "My Yoruba Alphabet," "Universal Order," and "Periodic Law." One of the most painstaking of inquirers,

Mr. Dennett was also one of the most genial and simple-natured of men, and his death will be most deeply regretted by a wide circle here and in Africa.

C.

SIR THOMAS WRIGHTSON, BART., M.INST.C.E.

SIR THOMAS WRIGHTSON, BART., a master of industry in the North of England, died at Neasham Hall, his seat on the banks of the Tees, on June 18, in the eighty-second year of his age. Like his cousin, the late Lord Armstrong, in whose Elswick works he served his apprenticeship, Sir Thomas combined a business aptitude with the qualities which go to make a research worker and inventor. He contributed numerous papers on professional and technical subjects to the Proceedings of engineering and metallurgical institutes and societies with which he was associated, but of his contributions to knowledge the one which is most likely to be remembered is connected with a pastime rather than with his profession. He was an ardent musician in his earlier years, and became interested in the power possessed by the human brain of resolving compound sound-waves into their component notes. He was not satisfied with the theory put forward by von Helmholtz in 1863, and in 1876, when giving a presidential address to the Cleveland Institution of Engineers, he put forward an observation which he afterwards made the basis of a new theory of the mechanism of hearing. This observation was that if the sine curves representing a compound sound-wave are plotted out on a zero line, and if it is supposed that each crest, trough, and "crossing point" on such a tracing could give rise to a

stimulus on entering the ear, the time intervals of all the primary component notes could still be recognised. The cochlea, he supposed, must be able to detect these as pressure pulses, and acted not as a resonator but as an hydraulic apparatus. A little later he became involved in public life and in politics, and sat first for Stockton and afterwards for St. Pancras East in the Conservative interest. In 1906 he abandoned politics to devote himself anew to working out the idea he had first put forward in 1876. In 1907 he published a monograph under the title, "On the Impulses of Compound Sound Waves and Mechanical Transmission through the Ear." In this publication he describes and figures a machine of his own invention—an ohmograph he named it—by which he could combine the tracings of two, three or four simple notes into their combined form. Associating himself with Prof. (now Sir) Arthur Keith, a reinvestigation of the finer anatomy of the cochlea was undertaken, with the result that many facts came to light which were favourable to his interpretation of the mechanism of the internal ear, but could not be explained on the supposition that the cochlea serves as a resonator. In 1918 Sir Thomas brought his evidence together in the form of a book which was published by Messrs. Macmillan under the title, "An Enquiry into the Analytical Mechanism of the Internal Ear." The theory thus put forward is at present being subjected to a searching criticism, and if it be too much to claim that anything like finality has been reached, it may be safely stated that the author has made a contribution which has a permanent value for students of auditory mechanism.

Notes.

THE formal opening of the new Intermediate Scale Chemistry Laboratory of the Imperial College of Science and Technology by Mr. A. J. Balfour (the Marquess of Crewe presiding) will take place tomorrow (Friday) at 4 o'clock.

THE annual general meeting of the Research Defence Society will be held at 11 Chandos Street, W.1, on Wednesday, June 29, at 3.30, under the chairmanship of Lord Lamington. Dr. H. H. Dale will give an address on "The Work of the National Institute for Medical Research."

THE Semon lecture for 1920-21 in connection with the University of London will be given at 5 o'clock on Tuesday, July 5, at the Royal Society of Medicine, 1 Wimpole Street, W.1, by Dr. J. Horne, who will take as his subject "The Relationship of the Larynx to Pulmonary Tuberculosis." Admission will be free, without ticket.

A BILL to provide for the time in the British Isles being in advance of Greenwich mean time during a certain period of the year has been presented to the House of Commons.

THE president and council of the Royal Society have appointed Mr. H. Robinson, of the University

of Manchester, to the Moseley studentship for research in molecular physics, the funds for which were bequeathed to the Royal Society by the late Lieut. H. G. J. Moseley.

THE John Fritz gold medal has been awarded by the National Societies of American Engineers to Mr. Schneider, past-president of the Iron and Steel Institute, in recognition of his work in connection with the development of artillery.

By the will of the late Sir Felix Semon, the laryngological library of this well-known throat specialist is left to the Royal Society of Medicine.

A GOLD loving-cup was presented on Friday last by the members of the Royal Institution to Sir James and Lady Dewar on the occasion of their golden wedding.

IN consequence of the illness of Dr. J. Rennie, it has been found necessary to suspend the arrangements made by the Ministry of Agriculture and Fisheries for the examination of diseased bees. The Ministry will issue a further announcement as soon as other arrangements have been made.

At the evening meeting of the Royal Geographical Society on Monday last the president stated that the