morphose, and would soon completely change into elvers or glass-eels.

To determine where the eels actually spawned it remained to find the earliest larval stages and the eggs. This involved a search extending all over the whole southern and western part of the North Atlantic. Only after years of persistent effort was it possible to reach a full and satisfactory solution of this aspect of the problem. Successful cruises were made in the *Thor* to the Straits of Gibraltar and the Mediterranean (1908–10). Arrangements were made with Danish ship-owners for nets to be towed from steamers crossing the Atlantic by different routes. In 1913 a small sailing schooner, the *Margrethe*, was equipped and cruised in the Atlantic as far as the West Indies, when it was found that the smallest sizes of the larvæ were all taken west of a line drawn from Newfoundland in a south-easterly direction towards Cape Verde. In 1920 a large schooner, the *Dana*, replaced the *Margrethe*, which had been wrecked. After two years it became possible to map out the breeding grounds by a study of the distribution of the earliest larval stages, less than 10 mm. in length, which had all been taken in a comparatively small area, the centre of which lay midway between the Leeward Islands in the West Indies and Bermuda. By these researches Schmidt may be said to have solved the main problem of the life-history of the eel.

With this extension of his cruises into the Atlantic Ocean, the scope of Schmidt's oceanographical work became enormously enlarged, and had developed into an important study of the great oceans. The Danish Government secured a large steam trawler, also named *Dana*, and equipped her as a research vessel. In this ship he undertook a number of voyages in the Atlantic Ocean, the Pacific and the Mediterranean, and finally made the great two years' voyage around the world in 1928–30, an account of which he published in NATURE of March 21 and 28, 1931.

Schmidt's study of the geographical distribution and life-histories of fishes led him, at an early date, into researches on fundamental biological problems concerning the nature of species, of races and of heredity, and his success as a biometrician and as a student of genetics was almost as striking as that which he achieved in oceanography. Biometrical studies on races of fish had formed a feature of his early work on gadoids and eels. Later, in a series of papers published between 1917 and 1922 in the *Comptes-Rendus* of the Carlsberg Laboratory and in the *Journal of Genetics*, the subject was developed on both statistical and experimental lines. Striking results were obtained with the viviparous blenny (*Zoarces*). He was able to show that in some of the Danish fiords the average number of vertebræ in populations of this fish living at the upper ends of the estuaries is significantly lower than that of the populations in the estuary mouths, the latter again being lower than that of populations living outside in the Kattegat. The averages varied progressively from 108·0 to 117·3. The question whether these fluctuations were due to heredity or to environment, or to both these factors, was made the subject of a well-devised series of experiments. A comparison of the average number of vertebræ in 857 mothers, with the corresponding number in 8,570 individuals of their offspring, showed that the values for the offspring continuously increased as the maternal numbers increased from 107 to 119. The conclusion was drawn that such a conformity could not appear if the number of vertebræ in an individual were determined by the environmental conditions existing during development alone. The number of vertebræ must therefore be, in part at any rate, a hereditary character. Experiments were then made by keeping samples of 300 specimens of each of two different populations of *Zoarces* in an enclosed area near the mouth of Ise Fiord in large, perforated wooden boxes, with the result that the difference in the numbers of vertebræ in the two populations did not disappear in the offspring. On the other hand, two samples of the same population, allowed to develop under different environmental conditions, did show a smaller, but significant difference in the number of vertebræ of the offspring.

In continuation of work on race problems, Schmidt carried out many breeding experiments on trout, and on the fresh-water tropical fish *Lebistes reticulatus*, as well as on poultry.

Such a wide and varied field of fruitful effort leads one to ask, what qualities in the man lay at the root of his success? First, I think, a broad, clear outlook on the problems he hoped to solve was followed by a bold but simple and straightforward plan of attack: then, steady, hard, persistent work, carried on year after year with no turning aside, every detail carefully thought out, every operation accurately performed until at last the answer came. He was a fine organiser and knew how to get the best from those who helped him. The brilliant school of young marine biologists in Denmark, who will continue the work that he began, is his true memorial.

E. J. ALLEN.

DR. ALFRED RÉE

IN the death of Dr. Alfred Rée at Withington on February 26, at the age of seventy years, both chemical industry and the profession of science lose an acknowledged leader and one whose wide outlook and sympathy had won universal respect. Dr. Rée was born at Leeds and educated at the Bradford Grammar School and later at the Universities of Geneva and Munich. He was a Doctor of Philosophy of the University of Berne and had travelled widely on the Continent and in the United States, to which circumstance no doubt his interest in international affairs was partly due. He was a warm supporter of Lord Derby when he was forming the English

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Speaking Union and many Americans found a genuine welcome at Dr. Rée's house.

Dr. Rée entered business as a dyestuffs manufacturer and was proud of a connexion through Claus Rée and Co. at Clayton with Brooke, Simpson and Spiller, who were successors of Simpson, Maule and Nicholson, and Perkin and Sons, the original manufacturers of mauve. Although he retired from the industry in 1907, he retained many and varied interests in dyestuffs and other branches of chemical industry and was a director for some years of the British Dyestuffs Corporation. He is probably best known for his work for the Manchester Chamber of Commerce; early in his life he was vice-chairman of the chemical section and he played a prominent part in securing reform of the patent laws. Elected a director of the Chamber in 1910, he was made president in 1924–25. He was one of the founders of the Association of British Chemical Manufacturers and served on its Council for several years, being still an honorary member at the time of his death.

With these industrial and commercial interests, Dr. Rée combined a keen interest in education and long served the University of Manchester as treasurer and deputy treasurer. He was for many years chairman of the chemical section of the College of Technology and served on the Manchester Education Committee from 1910 until his death. He was elected a fellow of the Institute of Chemistry in 1918 and served on its Council in 1927–30. He took an active interest in the formation of the British Association of Chemists in 1917 and served as its first chairman. He was one of the oldest members of the Society of Chemical Industry and was a vice-president in 1919–21. He also served as president of the Society of Dyers and Colourists in 1916–17 and his presidential address to that Society is a fine example of his wide outlook and mature judgment.

Few scientific workers have indeed displayed such a fine capacity for public as well as personal service and only Dr. Rée's modesty prevented him from being better known. He was singularly free from ambition and was a most approachable man in spite of his many interests. A quiet but tenacious personality and a rare capacity for impartial judgment won him wide popularity as well as respect, and his indefatigable industry leaves a place among the country's industrial and professional leaders which will be hard to fill.

R. B.

Sir Benjamin Gott

Sir Benjamin Gott, who died on February 26 at the age of sixty-seven years, was one of the group of distinguished educational administrators whose careers virtually began with the passing of the Education Act, 1902. Sir Benjamin held the office of Secretary to the Middlesex Education Committee from 1902 until 1928; he was appointed Organising Inspector of Technical Education in Middlesex in 1898, and, at the date of his retirement, had completed thirty years' service as Education Officer to the Middlesex County Council.

Benjamin Scaife Gott was born at Bingley and became a foundation scholar of Bradford Grammar School. Thence he passed as a scholar to Gonville and Caius College, Cambridge, where he took a first class in Part I and a second class in Part II of the Natural Sciences Tripos. After three years on the staff of Wesley College (now King Edward VII School), Sheffield, he became science master at Cheltenham Grammar School, where he had Sir Robert Blair, afterwards Education Officer to the London County Council, and Mr. E. Salter Davies, Director of Education for Kent, as colleagues. He also acted as Principal of the Cheltenham School of Science.

His duties in Middlesex were at first confined to technical education—the opportunity for the full exercise of his great gifts as an administrator came with the Education Act, 1902, by which the County Council became the higher education authority for the whole of the Administrative County and the elementary education authority for an area containing about one-third of its population. It was Sir Benjamin's ambition to create a system of secondary schools which would make higher education available for all boys and girls of ability, however poor the circumstances of their parents. He had the satisfaction of seeing his ambition realised before he retired. In the interval between 1902 and 1928, the County Council had provided thirty-four new secondary schools and the number of pupils in attendance had increased from 700 to 18,000. In 1898 the Middlesex authority spent £7,000 on education; in the last year of his service, the authority's expenditure was nearly £1,500,000.

Sir Benjamin was, for some time, a member of the Consultative Committee of the Board of Education, the Adult Education Committee, and the Burnham Secondary and Technical Committees. After the War he rendered valuable service as Divisional Director of Industrial Training in connexion with the Ministry of Labour's scheme for the training of disabled ex-Service men. In 1924 he received the honour of knighthood in recognition of his services to education.

Soon after he retired, Sir Benjamin became chairman of the Commission on Educational and Cultural Films. A few weeks before his death he accepted the chairmanship of the Unemployment Committee of the National Council of Social Service, and in order to free himself for the onerous duties of this position, he resigned his membership of the governing bodies of the Northern Polytechnic, University College School and the Maria Grey Training College. This work took him to Bolton the day before he died. Whilst presiding at a conference of voluntary workers, he was overcome by a fainting attack, which was followed by a fatal seizure early the next morning.

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