

was the enigmatic encrusting organism obtained by him in the neighbourhood of Madeira, and afterwards named *Merlia normani*, in his honour, by Mr. R. Kirkpatrick. A third genus of remarkable interest which we owe to his enthusiasm is the parasitic Crustacean, *Synagoga*, belonging to the Ascothoracica, a highly specialised and degenerate subdivision of the Cirripedia.

But it must be emphasised that Canon Norman was much more than a describer of new species and a discoverer of interesting forms. His researches have been of real value in enlarging our knowledge of the marine fauna in general, and few others have contributed more than he did to the faunistic study of the sea.

As one who for many years had the privilege of his friendship I can speak with the most sincere admiration of his genial character, his perfect sincerity, and the high ideals by which he regulated his life. Of his work as a parish priest I am not competent to speak, but I believe that his ministrations were very highly valued by those who came under his influence. Canon Norman was a man of altogether lovable type, and it was impossible to be in his company without feeling the better for it. These characteristics lasted to the end of his life, during the closing years of which he had borne the infirmities of serious illness with an unclouded mind and a fine courage, and without losing the qualities which endeared him to his friends. SIDNEY F. HARMER.

PROF. OLAUS HENRICI, F.R.S.

OLAUS MAGNUS FRIEDRICH ERDMANN HENRICI was born in the year 1840 at Meldorf, on the west coast of Holstein. After leaving the gymnasium at Meldorf at the age of sixteen, he worked in some engineering works at Flensburg. Thence at the age of nineteen he went to the Karlsruhe Polytechnicum, where he had the inestimable advantage of coming under the influence of Clebsch, by whose advice he devoted himself entirely to the study of mathematics. At the age of twenty-two he went to Heidelberg, where he attended Hesse's lectures, and obtained the degree of Ph.D. He then studied under Weierstrass and Kronecker in Berlin. After a short time spent as *Privatdozent* at Kiel, he came to England in 1865.

For four years Henrici worked at engineering problems. During this time he published a little book on skeleton structures (now called pin-jointed structures), and he supplemented his earnings by giving private lessons to schoolboys. In 1870, after a short time spent as assistant to Prof. Hirst at University College, London, he succeeded him in the professorship of pure mathematics, and retained this position for ten years, when he exchanged it for the professorship of applied mathematics. In 1884 he left University College for the professorship of mechanics and mathematics at the Central Technical College, where he entered on a new field of work in the organisation of a laboratory of mechanics, which has been the model of

many others, and has had an important influence on the education of English engineers. In 1911 Henrici retired to Chandler's Ford, in Hampshire, where he died on August 10 last.

Henrici was a fellow of the Royal Society, and at one time a member of its council. He was president of the London Mathematical Society for two years, and chairman of Section A of the British Association in 1883. In 1884 the University of St. Andrews conferred upon him the honorary degree of LL.D. He acted as examiner in the University of London from 1875 to 1880, and in this capacity made his influence felt on the introduction of modern methods into the teaching of geometry. In 1877 he married the daughter of the late Rev. Dr. Kennedy and sister of Sir Alexander Kennedy, who survives him. There was one child of the marriage, Major E. O. Henrici, of the Royal Engineers.

Henrici was the author of mathematical papers published in *Crelle's Journal* and the Proceedings of the London Mathematical Society. He contributed several articles to the "Encyclopædia Britannica," amongst which that on "Projective Geometry" stands out as a model of lucidity and form of expression. He wrote jointly with his son a valuable memoir on the theory of measurement by metal tapes and wires in catenary, which made it possible to calculate distances on slopes up to 1 in 3 to an accuracy of one in a million. He was the author of a remarkable little book on "Congruent Figures," in which his ideas of the mode of treating elementary geometry are expounded. It covers in a small compass most of the ground of the first four books of Euclid's "Elements." At one time he purposed to write a sequel to it on "Similar Figures," but it would appear from his address to Section A of the British Association in 1883 that he failed to find a method of treating this part of the subject which entirely satisfied him.

The introduction into English teaching of the methods of vector analysis greatly interested Henrici, but of his ideas there remains in permanent form only what is published in the little book on "Vectors and Rotors" written by his assistant, Mr. G. C. Turner, from notes of his lectures. It deals only with the elementary parts of the subject. The matter contained in this book was to form the earlier portion of a more elaborate treatise. A great amount of manuscript has been left by Henrici, and it is much to be desired that someone will be found to go through it with care and save what is possible of his ideas.

Henrici was greatly interested in the construction of models to illustrate his teaching. One of these, made of rods, showed two confocal hyperboloids connected together so that they could be deformed, always, however, remaining confocal. It had a remarkable history, which he gave in the catalogue of the Exhibition of Mathematical Models at Munich in 1892.

Perhaps the most strikingly original piece of work he did was the invention of the harmonic analyser for representing the equation of a curve

in the form of a Fourier series, which he described in the *Philosophical Magazine* for July, 1894.

Henrici will be remembered chiefly as a great teacher. He had learned during his early struggle for a livelihood in London to aim at perfection in form of expression, and he refrained from publishing anything until he felt satisfied as to its form. But for this characteristic we might have had his books on "Similar Figures" and "Vector Analysis."

As one of the large body of Henrici's pupils, the present writer is able to bear testimony to the singular lucidity of his teaching and to his readiness to explain difficulties at all times. With qualities such as these it is easy to understand the mingled respect and affection with which his pupils regarded him. They feel that a great master of his art has passed to his rest.

M. J. M. HILL.

NOTES.

THE epidemic of influenza which has ravaged the country during the last month or so seems to be abating, at least in London, where, however, 1256 deaths were attributed to it in the week ending October 26. The experience of previous epidemics in London has been that excessive mortality from influenza in any single epidemic does not continue beyond a period of about six weeks. Contrary to what has been stated in the public Press, a summer epidemic like that of last July is unusual, and the occurrence of a second epidemic like the present within three months of a previous one is almost unknown. While the influenza bacillus was found only in a small proportion of cases in July, now it seems to be fairly prevalent, but the pneumonia complicating the disease, and to which the mortality is chiefly attributable, appears to be caused mainly by secondary infection with the pneumococcus or the streptococcus. In a small localised influenza epidemic which occurred in a hospital in France Majors Foster and Cookson establish an incubation period of forty-eight hours for the disease, also that infection spreads only within a narrow radius (*Lancet*, November 2, p. 588).

A SCHEME for a national organisation, to be called the Scientific Research Association, to secure a more effective promotion, co-ordination, and endowment of research has been developed recently by a small provisional committee, the acting secretary of which is Mr. A. G. Tansley, F.R.S., Grantchester, Cambridge. The idea is to set up machinery for collecting intelligence as to what is being done and what are the current and prospective needs. Subject committees would act as intelligence bureaux, which would put workers in touch with the best existing facilities for pursuing research in the various branches of science, and at the same time collect information as to current work and needs. This information would be co-ordinated by the council of the association, which would act as an intermediary between the subject committees on one hand, and Government and public bodies disposing of funds available for the endowment of research on the other. The aim of the association would be in no way to interfere with the activities of any existing body, but to co-operate intimately with all bodies and institutions concerned with research, and to act as a co-ordinating agency in all that relates to research. Adherence to the aims of the association has been obtained from a large number of representative men of science throughout

the country, and it is hoped to bring the association into relationship with the whole body of research workers in pure science.

THE Lord Mayor of Manchester (Sir Alexander Porter) presided on October 31 at a meeting which he had convened to consider the question of holding an exhibition of British scientific products in Manchester in December and January next. The meeting decided that the proposed exhibition should be held, and that the offer of the City Council to make the building of the College of Technology available for the purpose should be accepted. The proposed exhibition will be similar to that organised by the British Science Guild, which attracted so much attention when it was held recently in King's College, London. Its object will be to show Lancashire people, especially manufacturers and merchants, how many of the products which before the war they were accustomed to obtain from Central Europe are now being manufactured in this country, and how many altogether new products have been invented in Britain since the war began. The exhibition should also give an impetus to the application of science to the industries of Lancashire by showing how much some of these industries, as well as other British industries, owe to the work which British men of science have accomplished during the war. A sufficient sum of money has been guaranteed to cover the necessary expenses of the exhibition. It is hoped that further contributions to the guarantee fund will continue to be received so as to enable the scope of the exhibition to be extended and to include exhibits that will be of special interest to Lancashire. Offers to contribute to the guarantee fund and all other communications relating to the exhibition should be addressed to the Secretary of the Exhibition Committee, College of Technology, Manchester.

WE learn from the *British Medical Journal* that the following resolutions, recently adopted unanimously by the Paris Academy of Sciences of the Institute of France, were unanimously endorsed by the Academy of Medicine on October 15:—(1) The academy, believing personal relations between scientific men of the two groups of belligerents to be impossible until reparation and expiation of the crimes which have put the Central Empires under the ban of mankind permit them again to enter the concert of civilised nations, has adopted the following resolutions:—(2) The Central Empires shall be compelled by a provision of the treaty of peace to retire from international scientific associations established by diplomatic conventions and implying personal relations between the members. This exclusion would not apply to common action solely concerning administrative relations indispensable between such public service as those affecting the regulation of navigation, railways, telegraphs, etc. (3) As soon as circumstances allow, those international conventions not belonging to the two categories noted above shall be denounced by each of the competent groups of the Entente and of the United States of America in accordance with the statutes and regulations of each of them. New associations recognised to be needed for the progress of the sciences and their application shall be established forthwith by the Allies and the United States with the contingent co-operation of neutrals. (4) The Governments of the Allied countries and of the United States shall refrain from sending delegates to any international assembly at which representatives of the Central Empires would be expected to figure. It is desirable that the nationals of the Entente countries and of the United States should adopt the same line of conduct and not take part in any enterprise in