

in water, up to 300° F. or more when dry. This led on to one of Dallinger's best known researches (Proc. Roy. Soc., xxvii., 1878), in which he showed that flagellates could gradually adapt themselves to tolerate extremely high temperatures. Starting with a medium at 60° F., in which three selected species (*e.g.* *Dallingeria Drysdalei*) flourished, he very gradually raised the temperature to 158° F., without killing off the organisms. That scalding heat would, indeed, have been fatal to the original stocks, but there had been, of course, myriads of generations, and the power of resistance to heat had been gradually augmented. The adapted forms showed marked vacuolation. Dallinger seems to have thought that this was a case of the inheritance of "acquired characters," but it is obviously out with Weismann's category of "somatic modifications." It is interesting to recall that Darwin was much interested in Dallinger's experiment because of its bearing on the adaptation of living creatures to hot springs. He wrote:—"The fact which you mention about their being adapted to certain temperatures, but becoming gradually accustomed to much higher ones, is very remarkable. It explains the existence of algæ in hot springs."

So far as we know, Dallinger's microscopical studies did not extend beyond monads and the like except by way of recreation, and his output of work was not great. It was thorough, however, as the man himself, and the lesson of his patience has still to be learned by some of the too impetuous workers of to-day. In 1886 he published the "Fernley Lecture" on "The Creator, and What we may Know about Creation," and he wrote many scientific articles for the *Wesleyan Methodist Magazine*. He wrote also a number of papers on spontaneous generation and heterogenesis, both of which he profoundly disbelieved in, on the ultimate limit of microscopic vision and kindred questions, and on the thermal death-point of microbes. A characteristic deliverance was an address to the Literary and Philosophical Society in Liverpool entitled "Life-histories and their Lessons: a Defence of the Uniformity and Stability of Vital Processes as Controlled by the Laws of Evolution." But his *magnum opus*, apart from monads, was his edition and re-edition (1891 and 1901) of "Carpenter's Microscope," which he brought up to date, and with the aid of specialists developed into a most valuable encyclopædia of the whole science and art of microscopy.

Dallinger was elected a Fellow of the Royal Society in 1880, and he received the honorary degrees of LL.D. from Victoria University in 1884, of D.Sc. from Dublin in 1892, of D.C.L. from Durham in 1896. He enjoyed the respect and esteem of scientific workers, and he has left his successors a pattern of thoroughness, patience, and enthusiasm.

THE STUDY OF GERMAN IN SCHOOLS.

TWELVE months ago an influentially signed letter, dealing with the study of German in secondary schools, was sent to the President of the Board of Education. That letter pointed out the serious neglect into which the study of the German language is falling in secondary schools, and urged the Board to take steps to encourage and foster the teaching of German. It was made clear that the decline of German as a secondary-school subject is a matter of grave national importance from the points of view of general literary culture, the public services, practical utility, and of rendering a good understanding between the peoples of two great nations less easy.

About six months after the receipt of this letter, the Board of Education issued a memorandum (circular 705) on language-teaching in State-aided secondary schools in England, in which an optimistic view of the condition of German teaching in England was taken, and it appeared to be argued that an advance was in progress in the number of pupils studying the language.

The various associations interested in the teaching of modern languages have had the Board's circular in particular, and the whole question generally, under consideration again, and a second letter has been sent to the President of the Board of Education, signed by representatives of the Modern Language Association, the Society of University Teachers, the Teachers' Guild of Great Britain and Ireland, and the British Science Guild.

The letter conveys the sense of disappointment of the associations generally with the "Memorandum on Language Teaching in Secondary Schools in England" (circular 705), and dissents in particular from several of the doctrines and statements laid down in it. It appears that

The Board of Education has not obtained, and cannot obtain, the materials required for making the return on the time allotted to modern language teaching in schools in the exact form that the motion in the House of Lords made on February 5, 1908, demanded, but there seems no good reason why the Board should not furnish Parliament and the public, in whatever shape it thought good, with the information suggested by the motion. What we desire to know, and what the Board has full power and opportunity for ascertaining, is the present condition of modern language teaching in secondary schools, the place assigned to it in the curriculum by headmasters and governing bodies, the relation in which it stands to the teaching of Classics and of English, the qualifications, emoluments, and status of its teachers. On these points the memorandum throws no light.

The remark in the Board's memorandum that "the advance in the study of German is not at the present moment as rapid as the advance in the study of French, or even of Latin," scarcely represents the facts. All the evidence available shows that, not only has there been no advance in the study of German, but rather a rapid and decided retrogression. Sympathetic action is required to arrest this decline.

The letter continues:—

As regards the contention that "the curriculum of schools is necessarily guided by the course of the Universities to which it is to lead," we would observe that only a fraction of the pupils in State-aided schools proceed to the university, and no curriculum can be deemed satisfactory which does not satisfy the needs of the bulk of the scholars. The majority of the pupils in these schools leave school before the age of seventeen, and it is allowed that for such pupils, "both practically and educationally, German is a language of the first importance"; yet the Board throws the whole weight of its influence into the scale of Latin as against German, apparently out of consideration for the one boy in a hundred who will go on to the university; and in this case what would be confessedly good for the many would be no less good for the favoured few. The number at Oxford and Cambridge taking medicine, science, and modern subjects is rapidly on the increase, and it is a constant cause of complaint among the professors and teachers of these subjects that their pupils come to them heavily handicapped by their ignorance of German. It is hardly necessary to insist on the value of a knowledge of German to honour students in every faculty.

Our suggestion that the Board should encourage and foster schools of the type of the German Realschule and Ober-Realschule is not noticed, but it is indirectly negated by the insistence on Latin as one of two foreign languages where two are taught.

We would reiterate our conviction that a sound and thorough literary training can be given through English, German, and French without a knowledge of Latin. If, in the words of the memorandum, English can serve as "the backbone of a humanistic education," surely a combination of English, German, and French would constitute a valuable type of humanistic education.

We greatly regret that the Board has not, as yet, seen its way to lead public opinion on so vital a matter as the study of modern languages, and we express a hope that the memorandum is not its last word.

NOTES.

THE following is a list of those to whom the Royal Society has this year awarded medals. The awards of the Royal medals have received the King's gracious approval:—the Copley medal to Dr. G. W. Hill, For.Mem.R.S., for his researches in mathematical astronomy; a Royal medal to Prof. A. E. H. Love, F.R.S., for his researches in the theory of elasticity and cognate subjects; a Royal medal to Major Ronald Ross, F.R.S., for his researches in connection with malaria; the Davy medal to Sir James Dewar, F.R.S., for his researches at low temperatures; and the Hughes medal to Dr. R. T. Glazebrook, F.R.S., for his researches on electrical standards.

WE regret to see the announcement of the death, on November 12, of Dr. W. J. Russell, F.R.S., in his eightieth year.

THE death is announced, at sixty-six years of age, of Sir William Thomson, C.B., honorary surgeon to the King in Ireland, and the author of several publications on surgical subjects.

SIR T. H. HOLLAND, K.C.I.E., F.R.S., professor of geology and mineralogy in the Manchester University, will deliver the Wilde lecture of the Manchester Literary and Philosophical Society for 1910.

THE death is announced, on November 13, of Dr. C. Graham, formerly professor of chemical technology at University College, London, at seventy-four years of age. Dr. Graham was a vice-president of the Institute of Chemistry in the years 1882-4, and served on the council for several years.

THE specimens illustrating the manufacture of high-class lenses, shown by Messrs. J. H. Dallmeyer, Ltd., at the Franco-British Exhibition last year and the Imperial International Exhibition this year, have been presented to the Board of Education. This collection, which was awarded a Grand Prix, is now housed in the western galleries of the Science Museum, South Kensington.

At the annual general meeting of the Cambridge Philosophical Society on October 25, the following were elected officers of the society for the ensuing session, 1909-10:—*President*, Prof. Bateson; *vice-presidents*, Dr. Hobson, Dr. Fenton, Prof. Seward; *treasurer*, Prof. Newall; *secretaries*, Mr. A. E. Shipley, Dr. Barnes, Mr. A. Wood; *new members of the council*, Sir J. Larmor, Prof. Biffen, Prof. Pope, Mr. R. H. Rastall, and Mr. K. Lucas.

At the annual general meeting of the London Mathematical Society on November 11 the following were elected as the council and officers for the session 1909-10:—*President*, Sir William Niven, K.C.B., F.R.S.; *vice-presidents*, Mr. A. Berry, Dr. W. Burnside, F.R.S., Major P. A. MacMahon, F.R.S.; *treasurer*, Sir Joseph Larmor, F.R.S.; *secretaries*, Dr. A. E. H. Love, F.R.S., Mr. J. H. Grace, F.R.S.; *other members of the council* (names

of members not on the retiring council are in italics), Dr. H. F. Baker, F.R.S., Mr. G. T. Bennett, *Dr. T. J. I'A. Bromwich*, F.R.S., *Mr. E. Cunningham*, Mr. A. L. Dixon, Dr. L. N. G. Filon, Dr. E. W. Hobson, F.R.S., Mr. H. W. Richmond, and Mr. A. E. Western.

SIR ERNEST SHACKLETON was officially received by the Paris Geographical Society on Monday, November 15, in the Grand Amphitheatre of the Sorbonne, and gave an account of his Antarctic expedition. From the *Times* we learn that after the address Prince Roland Bonaparte, the president of the society, rose and said:—"Since its foundation in 1827 our Geographical Society, which is the *doyenne* of all similar societies, has always desired to recognise the labours of the most illustrious travellers by bestowing upon them its grand gold medal. Among those to whom it has been given were the Polar explorers Sir John Franklin, Sir James Clark, Ross, Dumont d'Urville, and Nansen. To the list of these great names the Geographical Society is happy to add yours by offering you its grand gold medal, which is the highest recompense that is in its power to bestow."

THE first session of the seventeenth International Congress of Americanists will be held in Buenos Ayres, Argentine Republic, on May 16-21, 1910. The general and sectional meetings will be held in the hall of the National University in Buenos Ayres. A second session will take place in Mexico in September of the same year. A commission of organisation has been formed, the president of which is Dr. José Nicolas Matienzo, dean of the faculty of philosophy and letters in the National University. Communications, which may be either oral or written, may be made in English, French, German, Italian, Portuguese, or Spanish. The conference will deal with questions relating to the ethnology, archæology, and history of the New World, and a detailed programme will be published towards the end of the present year. For further information application should be made to the general secretary of the committee of organisation, Dr. Lehmann-Nitsche, Calle Viamonte 430, Buenos Ayres.

THE annual report of the Liverpool Marine Biology Committee and the Port Erin Biological Station was submitted by Prof. Herdman at a meeting of the Liverpool Biological Society on November 12. In the course of his address Prof. Herdman gave an account of the work, both scientific and economic, carried out during the past year, such as the curator's report upon the hatching and setting free of more than seven millions of young plaice, making a total of 25½ millions during the six years the hatching has been in operation; the experiments in lobster rearing; Dr. Ward's investigations on the eggs and young larvae of the plaice (illustrated by many very beautiful enlarged photographs); Mr. Gravely's work on the development of the brittle-starfish; Dr. Herbert Roaf's researches on digestion in marine animals; Mr. Dakin's physico-chemical observations on the condition of the sea-water at different times in connection with the migrations of the food of fishes; Mr. Edwin Thompson's photomicrographs of various types of minute organisms in the sea; and Prof. Herdman's own investigations into the detailed distribution of life in the sea. Some of the biological stations and establishments for fish culture in Canada and the United States were also described, and attention was directed to the American system of providing dormitories and dining halls for the students and researchers, and to the manner in which men of wealth in the States advance science by making large donations to such laboratories in order to defray the expenses of special investigations or marine and other explorations.