neodymium chloride. In this way each of the stellar spectra is made to show a narrow artificial absorption line at λ 4272, which serves the purpose of a comparison spectrum from a source at rest. An exhaustive test of the accuracy attainable by this method has recently been made by Mr. T. S. H. Graham, making use of a photograph taken at the Harvard College Observatory (Journal R.A.S., Canada, vol. xii., p. 129). Twenty spectra were included in the measures, and four independent sets of measures and reductions were made. The different results obtained from the four series indicate a somewhat greater probable error than the 10 km. per sec. previously estimated by Kapteyn and Campbell. Full and interesting details of the procedure are given in the paper, and attention is directed to the various sources of error, of which even the partial elimination would lead to results of great value.

RECENT MARINE BIOLOGY.

THE December issue of the Journal of the Marine Biological Association contains several papers of exceptional interest. One of these, by Dr. Allen and Mr. Sexton, gives a detailed account of experiments with reference to the inheritance of eye-colour in Amphipods, and in a further paper Dr. Allen presents the general results in a very attractive manner. *Gammarus chevreuxi* had been maintained in the laboratory aquaria for several years, and, quite suddenly, in the third generation of a family of these animals, a striking mutation occurred. Normally the eye possesses black pigment, beneath which is chalk-white matter, but in some individuals of this family the black was replaced by red. A pure black-eyed stock which bred true for three years was mated with a red-eyed stock, which again bred true for five generations. Black behaved as dominant, and red as recessive, and the results of further breeding were in very close correspondence with Mendelian theory. Thus black hybrids carrying red were mated together, giving 4393 offspring, and 3327 of these were black and 1066 red. (The expected results are 3294 and 1098). In the course of the experiments a second mutant appeared in which there was neither black nor red pigment in the eye, but only the deeper-lying chalk-white matter. This albino condition was also transmitted in very close correspondence with expected Mendelian results. Yet a third mutant was observed, a condition in which the chalk-white pigment was absent, and this "no-white" variety behaved as a recessive to dominant white and also closely followed Mendelian laws of numbers. Thus there was a gradual loss of factors, and accompanying the process of albinism there was degeneration of the ommatidia of the eye, a tendency towards the production of such a condition as that exhibited by the various blind species of subterranean Amphipods.

In another paper Dr. Allen gives a general account of experiments with reference to the cultivation of diatoms, describing the methods employed by himself and Mr. Nelson in order to obtain pure cultures. In some of these experiments a normal artificial sea-water was employed, as similar in composition as possible to natural sea-water, and made from pure chemicals. The silica necessary for the growth of the diatom frustules was found to be obtainable from the glass in which the cultures were kept. Sometimes this culture fluid succeeded and sometimes it failed, and it was found that it always succeeded if it was inoculated with from 1 to 4 per cent. of *natural* sea-water. Some growth stimulant was, therefore, present in sea-water, and it was found that this substance could be replaced by a very small amount of an infusion of the green seaweed Ulva. The infusion could be evaporated to dryness and ignited to 200° C. without losing its activity, but if the ash were heated to low red-heat it became inactive. The growth stimulant is therefore some relatively stable, organic substance, and it is compared with those materials known as auxetics or vitamines. Besides these matters of special interest, Dr. Allen's paper deals also, in a very interesting manner, with the general conditions of productivity of food substances in the sea, and is a good summary of our knowledge with regard to this important series of problems.

J. J.

SCIENCE AND TECHNOLOGY IN NEW ZEALAND.

THE quickening of interest in pure and technical science brought about by the war in our Colonies as well as in this country is shown by the action of the New Zealand Government in publishing a journal entitled the *New Zealand Journal of Science and Technology*, to appear quarterly under the general editorship of a group of representative scientific men of New Zealand. This is intended to include a number of the shorter and more popular articles on scientific subjects which are likely to interest the general public, and is supplementary to the more detailed and extended reports of the various scientific departments of the Government. In this way it is hoped to interest and instruct the public in scientific questions, and to cause the growth of a healthy public opinion on the need for the organisation and extension of industrial research in the community.

The first number of the new journal, containing sixty-five pages, covers a very wide range of topics of general interest, including short articles on various biological and geological subjects and several papers dealing with mining matters, while an interesting account is given by E. Best on the Maori system of measurement. Special articles are contributed on the history and geology of the Wakamarina valley and goldfield and of the geology of the Waikato valley. Of particular interest is the account by L. Birks of the utilisation of the waters of Lake Coleridge as a source of electric power for the city of Christchurch, sixty-three miles distant. This is the first comparatively large-scale attempt to utilise the important sources of water power in the New Zealand lakes and rivers. The hydro-electric installation at Lake Coleridge was formally opened in November, 1914, shortly after the outbreak of war, and has un continuously since March 1, 1915. In the first year of its operation about 2000 kilowatts of power were utilised, and this increased to 4000 in the course of the second year. Six thousand kilowatts are now provided, and to meet further extension another installation of 3000 kilowatts is in course of erection, but has been much delayed owing to the war. This enterprise has proved such a success that it is likely to stimulate the public to make further use in the near future of their great natural resources in water power for general industrial purposes. In another article E. Parry discusses the economics of electric-power distribution, and emphasises the importance and economy of a centralised plant for the distribution of electric power for the larger towns.

Altogether the new journal has made an excellent beginning, and is likely to prove a useful asset in interesting and educating the public in the importance of the application of scientific methods to the needs of a young community.