

tures, salinities, and direct-current measurements made from ten vessels which were anchored for fourteen days (June 1 to 14, 1911) in a series of positions in the North Sea, selected with the view of studying the principal currents. A repetition of observations of this character from time to time as opportunity offers cannot fail to give information of the utmost value.

The plankton bulletin is composed entirely of tables, recording the species found in samples taken during the years 1908 to 1911; and from the number of records given it is evident that this side of the investigations has recently received far less attention than was formerly given to it. This is probably due to two causes. In the first place, the amount of time which is necessarily consumed in examining and recording a large series of plankton samples is very great indeed, and in the second place a doubt exists in many minds as to whether any very useful results will accrue from an indefinite continuation of work on the plan which up to the present has been followed. What seems to be required at the moment in plankton work is more freedom and liberty to the individual worker to devise and test new methods of quantitative investigation, which may eventually enable a trustworthy estimate of the annual and seasonal fluctuations to be arrived at by some means less open to criticism on the ground of trustworthiness and at the same time not so prohibitively laborious as the enumeration method of the Kiel school of workers.

For investigations on the minutest plankton forms—the nannoplankton of Lohmann—the enumeration method will doubtless have to be retained, and the plan for the preservation of samples for this purpose, described by Gran in *Publications de Circonstance*, No. 62, marks a useful step in advance. The method consists in adding to samples of sea-water, taken with a water-bottle from known depths, a small quantity of Flemming's strong solution. The samples may be kept in this way for many months, and, without any attempt at washing out the Flemming's solution, portions of the sample can be centrifuged, the minute plankton forms which are thus separated out being identified and counted under the microscope.

Vol. xiv. of the *Rapports et Procès-Verbaux* contains a number of papers of great interest dealing with investigations of food fishes. Dr. P. P. C. Hoek reports on the Clupeoids (other than the herring), Prof. D'Arcy Thompson on the later stages of the Gadoids, Dr. Masterman on the later stages of the Pleuronectidæ, and Dr. Johansen on the eggs, larvæ, and later stages of Pleuronectidæ from the Baltic. Dr. Ehrenbaum contributes a summary of a more extensive report which he is preparing on the mackerel, which not only brings together previous work, but also gives much new information on the habits and life-history of this important fish, at the same time making it clear that much further investigation is necessary. He points out amongst other things that little or nothing is known of

the small adult stages of this common fish, which, in spite of extensive fishing with nets that certainly ought to capture them, have rarely been taken, and then only in very small numbers.

Finally, the volume contains a useful report by Dr. Redeke on the present condition of our knowledge of the races of marketable fishes, in which the importance of further researches into this subject is made clear.

The International Council publishes as a separate volume what is described as a "preliminary brief summary" of the first part of Prof. Heincke's general report upon investigations on the plaice. This first part is entitled "Plaice Fishery and Protective Measures," and from the *procès-verbaux* of the meeting held in Copenhagen in September, 1912, we learn that the summary was then laid before the council and referred by it to a special committee. The latter committee was not, however, prepared to adopt immediately the recommendations made by Prof. Heincke, and the matter was further deferred.

These recommendations, put forward in a somewhat tentative way, comprise the imposition upon an international basis of a size-limit for plaice, below which the fish may be neither landed nor sold. It would appear that the great destruction of immature plaice which now takes place could only be effectively stopped if this size-limit were fixed at 25 to 26 cm. Such a high limit would, however, mean the immediate ruin of many inshore fisheries carried on by sailing trawlers. As most of these vessels on the continental side land their plaice *alive*, Prof. Heincke suggests that a lower size-limit of 22 or 23 cm. might be allowed for fish which are so landed. It must be pointed out, however, that this would not meet the difficulty in English ports such as Lowestoft and Ramsgate, where a size-limit of 25 or 26 cm. would probably mean the ruin of the trawling industry. Prof. Heincke emphasises the fact that the introduction of a size-limit would, in the first instance, be in the nature of an experiment, and that it is not possible to say beforehand with any certainty exactly what effect it would have on the fishery. The problem is, in fact, a much more complex one than it at first sight appears to be. A consideration of the present preliminary report rather suggests that the International Council has not yet had that problem adequately laid before it in all its numerous aspects and in a sufficiently comprehensive way. The council would scarcely at present be justified in proposing restrictions which would certainly, in the first instance, injure very seriously the livelihood of many owners and fishermen who are dependent upon the smaller boats.

#### AMERICAN UNIVERSITIES AND COLLEGES.

THE seventh annual report of the president and treasurer of the Carnegie Foundation for the Advancement of Teaching bears ample witness to the stimulating powers which come from the wise administration of an income of

nearly 130,000*l.* a year in furtherance of a definite end. Here it is the provision or supplementing of pensions for the teachers of institutions of university rank. The trustees' report is as interesting and informing as ever. The glimpses one gets into the heart of higher education in the States offer some comfort to the Englishman who is inclined to lament what he may call the mediævalism of our ancient universities. After all, there is in the States the Brown University, the governing body of which must contain a majority of Baptists; the same denomination also controls the destinies of the great University of Chicago, the president and two thirds of the trustees of which must conform. Neither of these institutions can share in the benefits of the Carnegie fund because of their religious restrictions, but, as a result of the existence of that fund, Brown is saving 1,000,000 dollars and Chicago 2,000,000 dollars, each for its own pension purposes.

The report contains a survey of State and municipal schemes for teachers' pensions, which is particularly interesting to us at the present moment. In many, if not in most, States, the "flat-rate" system has been adopted. A pension of 400 dollars after thirty to forty years' service is the normal arrangement. New York is more liberal. It provides pensions equal to one-half the retiring salary after thirty years' service. No pension is to be less than 600 dollars, and none more than 1500 dollars. The upper and lower limits in Boston are 600 and 312 dollars respectively, the basis of calculation within those limits being one-third the annual salary. Philadelphia gives from 400 to 800 dollars on the half-salary basis. Many cities and States have, however, not yet made provision of this kind for the staffs of their public schools, but the movement is progressing, thanks to the example of the Carnegie foundation.

The influence of the foundation has been particularly beneficent in the vexed question of college or university entrance requirements. "The border-line between secondary school and college resembles nothing so much as a species of border warfare," but colleges are steadily changing their standards of admission by requiring the completion of a satisfactory four-year course instead of a certificate of having completed so many "units" of study—a system not unlike that which encouraged elementary-school teachers to pile up as many South Kensington science certificates as possible, in order to increase their chances of promotion.

Nothing illustrates more effectively the good which this annual survey of higher education in the States is exerting than the chapters on "Advertising as a Factor in Education," "Education and Politics," and "Sham Universities." Readers of American journals know something of the first, but probably they have not realised the full extent of the evil. The examples pilloried in this chapter come as a violent shock to our sense of academic decorum. The trustees think the use of pictorial and coloured circulars by universities and colleges is distinctly limited, and they see objections to the practice of printing academic bio-

ographies of professors in the college prospectus, but Reed College at Portland, Oregon, exceeds all bounds by including in these biographies "editorships of college annuals, class votes on popularity, degrees that are expected, academic biographies of professors' wives, the number of their children, and finally portraits" of the staff. Even this gross breach of academic decency is beaten by McMinnville College, which advertises a "hand-picked" faculty producing "a product second to none in America." But Muskingham College, Ohio, bears the palm in this type of vulgarity. Its alumni include "the most beloved Bible teacher in America." It represents itself as at the geographical centre of the Church (Presbyterian), and prints "a rude cartoon of an old shoe filled and overflowing with riotous students, while a figure in academic costume chases others away with a bundle of sticks." Below the cartoon are verses of which this is a specimen:—

There is a college president, like the woman in the shoe,  
Who has so many children that he doesn't know what to do.  
He tries to treat them fairly, and give them each some room,  
But the college grows so grandly, like a town site on the boom,  
That unless her friends soon rally and provide another shoe,  
He must say to all new-comers: "Get out of here! Skiddoo!"

Abuses of this kind obviously do much to discredit all that is really good in the higher education of the States.

The Educational Bureau at Washington is also waking up to some well-known evils. The Commissioner has been looking into the question of universities and colleges which confer degrees. He finds only fifty-nine the degrees of which are wholly satisfactory, and 161 where they are approximately so, but the report under review tells us that these are less than a fourth of the institutions in the country which call themselves universities and colleges, all of which grant degrees.

The trustees of this foundation deserve the thanks of the American community for the courageous way in which they are discharging their great trust.

J. A. GREEN.

#### NOTES.

As announced already, the dedication of a window in memory of Lord Kelvin will take place in Westminster Abbey on Tuesday, July 15, at 3 p.m. The window, which is the result of action taken by engineers in the British Dominions and the United States, has been placed in the north aisle of the nave, in close proximity to the one erected in 1909 by civil engineers to the memory of Sir Benjamin Baker; and it has been designed and made by the same artist, Mr. J. N. Comper. A special service, with music, is being arranged by the Abbey authorities, and Mr. R. Elliott-Cooper, president of the Institution of Civil Engineers, will make the formal pre-