

statistical question, whether the fish in our seas are being diminished in number by the operations of man. A whole lecture would scarce be enough for me to explain to you the difficulties of this problem, the methods by which it is attacked, and the preliminary conclusions which we may more or less confidently affirm. Let me say this in a word, that there is no one answer to the question, but that we must separately set and answer it for each species of fish, and even for this or that particular ground. More than a hundred years ago, when our fisheries were trivial, the haddock deserted our coasts, and became, for the time being, a rare fish. Again, in 1866, long before steam-trawling began, Huxley's Commission reported that the haddock was the only fish of which it might perhaps be said or shown that its numbers had suffered diminution. In Great Britain alone, we take 100,000 tons of haddock a year from the North Sea, and, in spite of fluctuations, I cannot find that its numbers perceptibly or significantly diminish. The cod shows no signs of recent diminution, and has even been increasing in the north. It is otherwise with the plaice, the diminution of which was already made clear to the Committee of 1893. All authorities are agreed that this fish shows serious diminution; and only next month our International Council meets at Copenhagen to take in hand, after long investigation, this important and burning question. The plaice is of small comparative importance to us in Scotland, for, as I have already shown you, our plaice are few; but even in Scotland our statistics tell us that the diminution of this fish, and especially of the large plaice, has been great and rapid.

Many important questions I have had to leave untouched in this hurried sketch, but on one of these I must yet say a word, I mean the case of the small fisherman. We have seen in many ways that the industry as a whole tends towards concentration, to the use of larger boats, to the need of greater harbours; tends, in the case of line and trawl fishing, to gravitate towards the great centres of population and the great highways of traffic. And we have seen that an overwhelming proportion of the gain goes to those who work the fisheries on this larger scale, and that from their labours comes an overwhelming proportion of the supply. But there are still some 6000 small fishing-boats in England and 8000 in Scotland, and (though it is impossible to obtain exact figures) I think that about one-seventh or one-eighth of the 35,000 fishermen in Scotland, and a somewhat larger proportion of those in England, still live, as their fathers lived, by a petty industry, an industry closely akin to that by which thousands of men in Norway and Denmark live. With us they are the men who have been left behind, sometimes from lack of energy, often through poverty or the remoteness of their habitations, by the tide that has carried so many of their fellows to wider efforts and to comparative wealth. They are the fishers of crab, and shrimp, and lobster, the hand-line fishers of plaice and haddock and codling, the men who take, now and then, a day at the lines, a night at the herring, the dwellers in the antiquated harbours and in the tiny creeks of outlying coast and distant island. The kindest of Scotch proverbs tells us that 'it takes all sorts to mak' a world,' and these men have their claim upon us and their right to live. It is not too much to say that nowadays every fishery department in the kingdom is making these men's case the subject of its anxious and peculiar care.

It is partly for biological reasons, connected with the preservation of the general supply of fish, but it is in great part for these men's sake, and for the line-fishers in general, in order that they may have a stretch of waters of their own, that we close against

the trawlers the territorial and more than the territorial zone. When we close to trawling the waters of a shallow and sandy coast or bay, we are, on one hand, encouraging the lesser fishermen of the coast, and, on the other hand, we are trying to protect the young fish, flat-fish especially, whose nature it is to congregate on such grounds.

In some ways I think that the fishing industry, and the trawling industry in particular, may justly and rightly, and for the general good, have to submit in the future to greater restrictions than in the past—restrictions especially aimed, for the benefit of the industry itself, at lessening the waste of the younger fish. But, as Huxley said years ago, "Every legislative restriction means the creation of a new offence; means that a simple man of the people, earning a scanty livelihood by hard toil, shall be liable to fine and imprisonment for doing that which he and his fathers before him had, up to that time, been free to do!" Science, practical policy, and the interests of class and of constituency do not always tell the same story. And if responsibility be great upon the legislator, it is scarcely less upon the scientific inquirer, who, without pressing his side of the case too far, nor thinking that his opinion is all in all, must yet play a considerable part in reporting upon the merits of all fishery legislation, and in advising as to what had best be done, what it were better to leave undone, in the best light of his judgment, and with regard to the best interests of all.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LONDON.—The following scheme of inter-collegiate advanced work in physiology has been approved for the Honours B.Sc. Examination:—First Term, October-December, 1912:—Guy's Hospital: "Respiratory Exchange," by M. S. Pembrey; "The Chemistry of Blood," by E. L. Kellaway and J. H. Ryffel. Second Term, January-March, 1913:—University College: "Activity of Enzymes and Physiological Chemistry pertaining thereto," by Prof. Wm. Bayliss, F.R.S., and R. H. A. Plimmer. St. Bartholomew's Hospital: "Central Nervous System of Electrocardiography," by J. S. Edkins, C. M. H. Howell, or E. P. Cumberbatch. Third Term, May-July, 1913:—King's College: "Physiological Chemistry of Nervous and Muscular Tissues," by Prof. W. D. Halliburton, F.R.S., and O. Rosenheim. Bedford College: "Advanced Physiological Histology," by J. S. Edkins and Miss M. Tweedy. Internal students of the University are free to attend all the courses.

Mr. A. H. Cheatele has been appointed to represent the University at the ninth International Otolological Congress, which is to be held at Harvard University on August 12-17, and Sir G. Newman and Dr. Janet Lane-Clayton will be present in a similar capacity at the fifteenth International Congress of Hygiene and Demography at Washington on September 23-28.

An exceptional renewal for a third year of the science research scholarship held by Mr. E. N. da C. Andrade has been made by the 1851 Exhibition Commissioners, the scholarship held by Mr. H. T. Clarke has been renewed for a second year, and one has been awarded to Mr. H. T. Page for the ensuing year.

The Department of Technology of the City and Guilds of London Institute has issued its programme for the session 1912-13, containing regulations for the registration, conduct, and inspection of classes, the examination of candidates in technological subjects, and for the award of teachers' certificates in manual training and domestic subjects. The altera-

tions are not numerous, and chiefly concern the scope of certain of the schedules of work in technological subjects. We notice that by arrangement with the Postmaster-General, the institute will next year hold a special examination in magnetism and electricity for members of the Post Office staff, in connection with its examinations in telegraphy and telephony. The institute has been approved also by the Home Secretary for the purpose of granting certificates under the Order of February last prescribing the qualifications of surveyors for the purposes of the Coal Mines Act, 1911.

OXFORD.—The following members of Convocation have been appointed members of the new Board of Finance recently constituted by special legislation at the University, in pursuance of the scheme presented by the Chancellor, Lord Curzon of Kedleston, in 1908, and accepted by Council, Congregation, and Convocation:—The Right Hon. Sir George H. Murray, the Hon. Sidney Peel, Mr. F. W. Pember, the Dean of Christ Church (Dr. Strong), Mr. G. E. Baker, Mr. F. C. Miles, the Right Hon. F. Huth Jackson, Mr. H. T. Gerrans, and Mr. E. Armstrong. The first three gentlemen were nominated by the Chancellor, the next three were elected by Convocation, and the last three were nominated by Council.

MR. J. GOLDING has been appointed research chemist in dairying at University College, Reading. As stated in our issue of July 11, Dr. S. J. M. Auld has been appointed professor of agricultural chemistry at the same institution.

A SUMMER School of Geography is to be held in Yorkshire in August of next year. The school is being promoted by the Universities of Durham, Leeds, and Sheffield, in cooperation with the County and Borough Education Committees of Yorkshire.

MR. A. A. BOWMAN, lecturer in logic at Glasgow University, has been appointed professor of philosophy in the University of Princeton, New Jersey, in succession to Prof. J. G. Hibben, lately appointed president of the same University.

THE sum of 10,000*l.* has been given to the Chancellor of the Exchequer by a Welsh gentleman whose name has not transpired, for the furtherance of higher education in Wales. Of this amount the National Museum, Cardiff, is to receive 3000*l.*, the University College of Wales, Cardiff, 2000*l.*, and the National Library, Aberystwyth, 5000*l.*

New science laboratories at Cranleigh School, Surrey (the gift of Sir C. Chadwyck-Healey), were recently opened by Sir William Ramsay, K.C.B., F.R.S., who, in the course of his remarks, said that the effect of the laboratories would be to make it clear to them all that chemical discoveries were not at an end. It was not well, however, for the scholars to confine themselves to one subject only. They should strive to be as good as possible in many things, though they might excel only in one.

WE are informed that as a result of the efforts which have been made during the past two years a sum of 32,000*l.* is now available for the provision of new buildings for the Hartley University College, Southampton, and towards increasing its endowment. The larger portion of this sum has been promised by private individuals, but recently 2500*l.* has been promised by the Hampshire County Council, and 5000*l.* by the Southampton Borough Council. In addition to this the Southampton Borough Council has voted an additional 1*l.* rate for the college. The erection of the first block of new buildings, to provide accommodation for the arts departments of the college, can now be begun. A site has been obtained

on high ground, not far from the Southampton Common, and it is confidently anticipated that the transference of the college to its new quarters will result not only in a large increase in the number of students, but also in a greatly enhanced interest on the part of residents in the southern counties in the question of the maintenance of a centre of university education in Southampton.

## SOCIETIES AND ACADEMIES.

### PARIS.

**Academy of Sciences**, July 22.—M. Lippmann in the chair.—M. Bassot: The preparation of a map of western Morocco on the scale of 1/200,000. Details are given of the measurement of the base and triangulation carried out up to the present. The work will be continued in October.—A. Müntz and H. Gaudechon: The degradation of phosphatic manures in the soil. From the experiments described it is shown that phosphatic manure should be given annually. Larger amounts than those required for one year are degraded to a non-assimilable form.—Paul Sabatier and Alph. Mailhe: The catalytic preparation of the phenolic and diphenylenic oxides. Mixed oxides. The method is based on the catalytic action of thorium oxide at 380° to 450° C., and examples are given of the ethers prepared in this way.—M. Amann: Observation of the solar eclipse of April 16 and 17, 1912, at the Observatory of Aosta, Italy.—L. Ancel: The photometry of the solar eclipse of April 17, 1912, with the aid of selenium and a recording galvanometer. The curve obtained during the eclipse is reproduced.—Louis Dunoyer: The disruptive discharge through pure sodium vapour.—P. Noguès: A new kinematograph. The instrument described can take 180 images per second, and has been applied to the examination of certain movements in running, jumping, and flight.—A. de Gramont: The ultimate lines and great sensibility of chromium, manganese, iron, nickel, and cobalt.—Félix Bidet: Equilibrium of the system ammonia gas and ethylenediamine chloride.—J. Languier des Bancels: The solubility of coloured resins submitted to the action of light.—A. Guasco: The detection of small proportions of carbon monoxide in air.—V. Hasenfratz: The hydrogenated derivatives of apoharmine.—G. Vavon: The catalytic hydrogenation of the ketones. An account of the products obtained from various ketones when acted upon by hydrogen in presence of platinum black. The course of the reaction depends upon the liquid in which the ketone is dissolved.—Edouard Bauer: The action of sodium amide upon 1:4-dibenzoylbutane.—F. Jadin and A. Astruc: The presence of arsenic in some parasitic plants and their hosts. Parasitic plants, like those growing directly on the soil, contain normally a small proportion of arsenic. There is no apparent connection between the proportions of arsenic present in the parasite and its host.—E. Chuard and R. Mellet: Variations in the proportion of nicotine in various organs of the tobacco plant in the course of growth.—M. Gard: The possibility and frequency of autofertilisation in the cultivated vine.—J. Tournois: The influence of light on the flowering of the Japanese hop and of hemp.—E. C. Teodoresco: The assimilation of nitrogen and phosphorus by the lower algæ.—I. Pouget and D. Chouchak: The law of the minimum. A discussion of a recent note by M. Mazé on the relations between a plant and its nutritive medium.—J. Giaja: The ablation of the pancreas in *Haliaetus albicilla*.—Pierre Girard: The electric charge of the red corpuscles of the blood. Measurements of the velocities of the red corpuscles in an electric field in isotonic solutions of saccharose, common salt, and serum.—Jean Camus: The toxicity of