

known locally as "clams" of various kinds, and there also occur two species of *Mytilus*, a pecten, a cockle, and an oyster. The Indians made extensive use of these molluscs before the advent of the white man on this coast, as is shown by the great heaps of shells still remaining. *Mya arenaria*, which was transported from the Atlantic coast many years ago, probably with oyster-spat, has become well-established in many localities on the Pacific coast, where it inhabits the mudflats of bays and has advanced up some estuaries, always remaining, however, within the influence of salt water. The author records that in January, 1918, excessive rainfall caused exceedingly high water in one of these estuaries, the *Mya* being washed with comparatively fresh water for four weeks, and at the end of the period a dense layer of fine sand, up to 2 in. in depth, covered the clam

bed. A high percentage of the younger and weaker individuals was found to be dead, probably smothered by the fine silt. *Mya* is found to withstand transportation to inland markets if kept at a low temperature, and will remain in good condition for a week after having been taken out of the water, but the other clams cannot be sent successfully any distance in marketable condition. Certain of them are canned at the coast. Observations are given on the spawning periods and growth of the bivalves.

The attention of students of recent Crinoids may be directed to a paper by Dr. Austin H. Clark on "Sealilies and Feather-stars" (Smithsonian Misc. Coll., vol. 72, No. 7, 1921). The account, while devoted chiefly to external and skeletal features, includes short notes on regeneration, asymmetry, distribution, food, locomotion, etc.

Water-power Resources of India.<sup>1</sup>

THE Triennial Report (1919-1921) of the Hydro-Electrical Survey of India, which has just been received, is of the character of a comprehensive volume, embodying all the essential information contained in the preliminary and second Reports, which have already been noticed in NATURE. In addition, it contains later information derived from the investigation of certain sites selected for their potential value as sources of water-power supply. In the result, the opinion is formed "as a rough preliminary forecast" that the probable water of India for maximum development is some 12,680,000 kilowatts, equivalent to 21½ million water horse power, of which only 1¼ per cent. so far is developed or in course of development. The estimate is, of course, to be received with caution, as it is largely "speculative and based on the minimum of reliable information." The water power actually developed at the present time amounts to 138,780 kw., (continuous), capable of being expanded to 213,150 kw., in accordance with the ultimate capacity of the sites exploited. The following is a detailed summary of the probable *minimum* continuous water power:—

	Brought forward	Kw.
Jammu and Kashmir		2,933,320
Madras		305,330
Mysore		92,310
North-West Frontier		48,500
Patiala		1,000,000
Punjab and Canals		290
Rajputana		793,150
Sikkim		160
Travancore		5,000
United Provinces and Canals		450
		403,370
		<u>5,581,880</u>

	Kw.
Assam	414,000
Baroda	4,000
Bengal	669,850
Bihar and Orissa	62,550
Bombay	644,310
Burma	951,570
Central India	680
Central Provinces and Berar	137,560
Cochin	4,000
Coorg	1,500
Gwalior	43,300

Carry forward 2,933,320

<sup>1</sup> Hydro-Electric Survey of India. Volume III. Triennial Report with a Preliminary Forecast of the Water Power Resources of India, 1919 to 1921. By J. W. Meares. Pp. ix+199. (Calcutta: Government Printing Office, 1921). 4 rupees.

The Survey is being made under the supervision of Mr. J. W. Meares, who was appointed Chief Engineer in succession to Mr. F. E. Bull. It is noteworthy that the same reluctance to finance hydrographical surveys exists in India as in other parts of the Empire. Mr. Meares is much concerned as to the outlook. As a consequence of the "Reforms" made by the Government of India, it was decided in October, 1920, that all outlay on water storage and water power would be a Provincial charge and that the necessary provision for hydro-electric surveys should therefore be made in the Provisional Estimates from and after the year 1921-22. When the Estimates came up for approval before the various legislative councils, in many instances reductions were moved, and as the matter now stands "the Survey is in danger of falling between the upper and the nether millstone, as the Government of India is no longer able to provide funds for a continuance of the work."

A considerable quantity of useful data is incorporated in the volume, including seven plates and maps, 23 diagrams, and 51 tables. Much detailed information is set out for the guidance and direction of those engaged in the Survey, of whose cordial cooperation Mr. Meares speaks very highly.

University Pensions.

THE Sixteenth Annual Report of the Carnegie Foundation for the Advancement of Teaching provides some interesting reading, especially regarding pension systems. The claim is made that in the Reports of the Foundation will be found "the most complete information concerning pensions and pension systems in existence." The remarks on the University Teachers' pensions in England and Wales deserve notice. Reference is made to the movement of the Association of University Teachers to secure the extension of the School Teachers (Superannuation) Act of 1918 to University teachers, or failing this to

obtain benefits at least equivalent to those offered by the Act. As in previous years, the Report shows a strong bias against any non-contributory scheme. It is very easy to understand why this should be so. The Teachers' Insurance and Annuity Association of America could not have come into existence on any other than a contributory basis. On its own showing the Foundation was unable to finance a scheme such as is growing up in America. But no attempt is made to demonstrate how such a contributory scheme can be "sounder" than a non-contributory scheme backed by the government of the country. It would

be difficult to do so in face of the existence of the British Civil Service, and the report wisely refrains from the attempt.

In regard to the "problem of transfer" the report is greatly at fault. It is a pity the writer of it did not seek more accurate sources of information or at least endeavour to understand the facts of the case. At the present moment, and for the future unless a change is made, a teacher who "transfers" to a university sacrifices superannuation benefits in whole or in part. This is acting adversely upon the recruiting of university staffs, and will continue so to act unless some attempt is made to obviate this loss. We can assure the writer that the question of transfer from the lower to the higher branches of the profession in this country is a really serious one, and one which is felt especially in the departments of science and technology, as well as in those for the training of teachers. For example, some schools of the University of London come under the Act and others under the Federated Superannuation System, two totally different schemes, and in consequence transfers from one college to another in one and the same university are difficult if not impossible.

It may interest American university teachers to know that the British Government has made a grant of half-a-million towards retrospective benefits ("accrued liabilities") for the senior members of the teaching staffs in the universities—a sum which, by the way, is quite inadequate for the purpose—but for some extraordinary reason has made no provision for retrospective benefits in regard to teaching service in institutions and schools outside the universities. Is there any better way of making watertight compartments of the various branches of the teaching profession?

### University and Educational Intelligence.

CAMBRIDGE.—Close on the publication of the report of the Royal Commission commending the women's colleges to private benefactors comes the welcome announcement of a bequest to Girton College of 20,000*l.* This money, left by Rosalind, Countess of Carlisle, is earmarked for scholarships of 80*l.* per annum for girl students unable to pay for themselves.

LONDON.—The following doctorates have been conferred:—Ph.D. (Science) on Mr. A. C. Chibnall, for a thesis entitled "The Distribution of Nitrogen in the Leaves of the Runner Bean"; Mr. T. J. Drakeley, for a thesis entitled "The Ultimate Composition of British Coal"; Mr. H. S. Hatfield, for a thesis entitled "On a New Method for the Separation of Mechanical Mixtures of Powdered Substances"; Mr. G. H. G. Plymen, for a thesis entitled "The Geology of Jersey and Alderney"; Thirza Redman, for a thesis entitled "Observations on (Experimental) Intestinal Tuberculosis"; Barbara Russel-Wells, for a thesis entitled "The Constitution of the Cell Wall in Plants, more particularly that of the Red Seaweeds"; and Mr. T. Thomas, for a thesis entitled "The Effect of Stress on the Thermo-Electric Properties of Metal Wires with and without a Magnetic Field."

At University College, Gower Street, W.C., a course of six lectures on the Early History of the Land Flora will be given by Dr. D. H. Scott at 5.15 P.M., on Wednesdays April 26 and May 3, 10, 17, 24, and 31. The lectures will be illustrated by lantern slides.

At King's College, Strand, a course of four lectures on Biological Aspects of Oceanography will be given by Dr. Johan Hjort (of the University of Christiania) at 5.30 P.M., on April 28, May 1, 2, and 5. The lectures will be delivered in English.

At Bedford College for Women, Regent's Park, a course of three lectures on "L'Intelligence et la Volonté" will be given by Prof. E. Claparède (pro-

fessor of psychology in the University of Geneva) at 5.15 on April 28, May 1 and 2. The lectures will be delivered in French. Admission to all these lectures is free without ticket.

Two Munitions Committee Fellowships in research in engineering are offered by the University of Liverpool. The fellowships are tenable in the first place for one year, value 250*l.* each, but may be renewed for a second year when their value will be 350*l.* each. Forms of application and all particulars may be obtained from the Registrar of the University. Applications for the fellowships must be received before June 1.

SOME interesting summaries are provided in *Science* of March 17 showing the number of doctorates in science conferred by American universities in the year 1920-1921, and their distribution according to subject. In all, 332 doctorates in science were conferred by 32 institutions, an increase of nine on the corrected figures for the previous year; with one exception, they were distributed over the same universities. In spite of the increase, the number still falls far short of the maximum, 372, recorded for 1917. As has been the case for several years past, the biggest number, 42, was awarded by the University of Chicago, though Cornell, Columbia, Yale, Harvard, California, and Johns Hopkins Universities all conferred more than 20 doctorates each. Chemistry has, since 1912, claimed a great many more doctorates than any other subject, and in 1921 it seems to have been more popular than ever; no less than 134 doctorates of the total of 332 were given for this subject while the next highest figure is 36, the number of doctorates awarded for zoology. Botany, physics, and psychology were each of them the subjects of the theses of 25 to 30 doctorates.

On Monday, April 24, Dr. Malinowski, the well-known Polish sociologist, will deliver at the London School of Economics the first of a course of eighteen lectures on "The Sociology and Economics of Some Island Communities." This course of lectures embodies the results of an investigation of four years' duration in the course of which Dr. Malinowski made an intensive study of the culture of the Papuo-Melanesian communities on the coastal mainland and on the archipelago around the eastern end of New Guinea and more particularly of those of the Trobriand Islands. The complex economic system, of which Dr. Malinowski has already given some account in a previous course, will be analysed, and the remarkable manner in which their intricate economic system permeates their whole life will be described. In this field of investigation, Dr. Malinowski's results were not only unexpected, but they threw an entirely new light upon certain elements in primitive life. In like manner his investigations have revealed a definite, though rudimentary, legal machinery for the preservation of law and order. The regulation of sex life by taboos has given rise to a mythical cycle and a whole system of love-magic; while sorcery, which plays a large part in the life of the native, is based upon a complex system of auto-suggestion and counter-suggestion. The most significant feature in the material which Dr. Malinowski has collected, is the extraordinary complexity and inter-relation of the elements of native life. On more than one occasion reference has been made to difficulties arising out of this complexity when native custom is modified under European authority. Dr. Malinowski's results, from this point of view, are a strong argument in favour of the institution of a central organisation at which such data as these may be made available for the use of administrators.