

several sections into which the island is divided for meteorological purposes. While the rainfall is fairly well distributed over the year, it is rather heavy in each division in May, June, September, and October; the north and north-east divisions have winter rains in November and December, and the north-east and west-central divisions have summer rains in July and August. The annual average for the whole island is 71.77 inches, maximum 90.61 inches in 1886, minimum 45.18 inches in 1872. The heaviest falls occur in the north-east division, where the aggregate average is 93.52 inches, the annual amounts exceeding 100 inches in many years. Some remarkable flood rains in twenty-four hours are reported during cyclonic disturbances, frequently exceeding 20 inches, and on one occasion (November 6, 1909) exceeding 30 inches on the Blue Mountain range. A table of the mean diurnal range at Kingston shows that the rainfall increases more or less regularly from the early morning until 3h. and 4h. p.m., after which it decreases to a minimum at midnight. The work is a valuable addition to our knowledge of the rainfall in the West Indies.

Dr. O. L. Fassig has sent us a useful paper on "The Climate of Porto Rico," chiefly based upon observations of the U.S. Weather Bureau during the years 1899-1909. The island, which is the most eastern of the Greater Antilles, and one of the most favoured regions within the tropics, has always been primarily devoted to the pursuit of agriculture. It has an equable and comfortable climate; the mean annual temperature at forty selected stations (combining all the records) is given as 76.4°, February 73.3°, August 79.1°, absolute maximum 103° in August, minimum 43° in February and March. The mean values naturally vary somewhat at individual coast and mountain stations; there is a fairly constant difference of 6° to 8° between the coast temperatures and those of the higher inland stations throughout the year. The average annual rainfall for the whole island is 77.30 inches; the amounts vary greatly from year to year, e.g. 93.72 inches in 1901, and only 64.18 inches in 1907, while in the Luquillo mountains, where rainfall is heaviest, the average annual amount exceeds 135 inches, and along portions of the south coast it is less than 40 inches. The average number of rainy days is 169 for the island as a whole; there are no well-defined wet and dry seasons. Porto Rico is comparatively free from storms of all kinds; the centre of a hurricane has only passed over the island three times in forty years, all in the month of August.

BIRD NOTES.

THE Agricultural Research Institute at Pusa, Bengal, has taken up the subject of the food of Indian birds, and issued a preliminary report (Mem. Dept. Agric. India, Entomology, vol. iii., January, 1912) by Mr. C. W. Mason, edited and supplemented by Mr. H. Maxwell Lefroy. To a great extent the report is a compilation of extracts from the writings of Indian ornithologists relating to the food of birds, but it also includes an analysis of the contents of the stomachs of a considerable number of specimens (1325) which have been examined in the laboratory. It is very largely a confession of ignorance, as at present little is known with certainty as to the economic utility or harmfulness of Indian birds, and it is consequently impossible in most cases to make definite statements. Mr. Mason is, however, of opinion that as weed-killers—by consuming seeds—birds are of no value at all in India. Such birds "may keep weeds down to a certain extent, but this is of minor importance in a country where labour is

cheap and where farming is not practised on such intensive lines as elsewhere. Even in intensive cultivation we cannot rely on weeds being kept down by birds, and the expense of cultivation to eliminate weeds is, I believe, not reduced in the slightest by the action of birds."

It is noteworthy that although hawks and owls are regarded, in the main, as beneficial, yet they are considered to be undoubtedly harmful on account of destroying insectivorous shrewmice, toads, frogs, and lizards.

In the February number of Witherby's *British Birds* Mr. Ogilvie Grant points out that the partridge possesses two seasonal plumage-changes—one in the male and the other in the female—which have been hitherto overlooked. During the autumnal moult, lasting from July to September, the cock develops on the sides of the head and neck light umber-brown feathers marked by narrow buff, black-bordered shaft-stripes; this so-called eclipse-plumage replacing for about two months the normal black-waved grey feathers. In the hen during May the ordinary plumage of the same parts, as well as of the back, is replaced by sandy-brown feathers mottled or barred with black, and having buff shaft-stripes, and usually a terminal spot of the same hue. This breeding plumage, which is retained until September, produces a mottled appearance, especially round the neck, which is held to be protective to the sitting bird.

The April number of the same journal contains a supplementary record by the editor of the dispersal of little auks over the inland districts of England due to the stormy weather which prevailed in the early part of January. The birds seem to have struck the coast in greatest numbers between Norfolk and the Firth of Forth, those reported from the western and midland counties having probably travelled from the east. Although the number of birds appears to have been fewer than in the visitation of 1895, they seem to have been spread over a wider area of country.

Notes on the breeding of the white-headed stilt in a swamp near Melbourne are contributed by Mr. C. French to the January numbers of *The Emu* and *The Victorian Naturalist*. This is believed to be the first record of the breeding of these beautiful birds in Victoria. Unfortunately, the swamp dried up before the nesting was completed, thus causing many of the eggs and young to be deserted. The nests, which were from 10 to 15 ft. apart, and were made of dried water-plants, were constructed on tussocks of sea crab-grass (*Salicornia*); the first eggs were laid early in October.

In his review of Norfolk ornithology for 1911, published in *The Zoologist* for April, Mr. J. H. Gurney suggests that the breeding of a pair of bitterns in the county may have been due to the drying up of some of the Dutch swamps by the unusual heat and dryness of the summer. Another event was the nesting of a pair of curlews near King's Lynn.

We have received a copy of the second number of *The Austral Avian Record*, a new journal, edited by Mr. G. M. Mathews, and published by Messrs. Witherby and Co., primarily devoted to the study of Australian birds. This number contains a long list of new subspecies and other addenda to the Australian fauna, which from internal evidence is clearly from the pen of the editor, although there is no other indication of its authorship.

The birds of Lower Egypt form the subject of an article by Mr. C. B. Ticehurst in the February issue of *The Zoologist*; Mr. M. J. Nicoll is also writing on the same subject in *The Ibis*.

In a pamphlet published for Government at the National Printing Department, Cairo, Mr. Nicoll gives a list of the species of wild birds (other than those kept in captivity) observed in the Giza Zoological Gardens between the years 1898 and 1911 inclusive. The list includes 200 species, of which 187 are indigenous to Egypt, while the remaining 13 are foreign, and were doubtless represented by individuals escaped from captivity in Cairo. R. L.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LEEDS.—On the recommendation of the Livesey Memorial Committee, the University Council has appointed Mr. John William Cobb to be Livesey professor of coal gas and fuel industries from the end of the present academic year, when the chair will be vacated by Dr. W. A. Bone, F.R.S., who has accepted the professorship of fuel and refractory materials at the Imperial College of Science and Technology.

On the recommendation of the advisory committee on higher commercial education, the University Council has decided to develop the teaching of geography in connection with the department of economics, and has appointed Mr. Llewellyn Rodwell Jones as assistant university lecturer in geography.

MR. F. A. DUFFIELD has been appointed demonstrator in experimental physiology and pharmacology at the University of Sheffield.

THE annual meeting of the Parents' National Educational Union will be held at University College, London, on Tuesday, May 14, when an address on "Some Educational Ideals" will be delivered by the Rev. A. A. David, headmaster of Rugby School.

THE committee of University College, London, will shortly proceed to make an appointment to the post of senior assistant in the department of zoology and comparative anatomy, which has been rendered vacant by the election of Dr. W. N. F. Woodland to the professorship of zoology in the Muir Central College, Allahabad.

THE Maryland Legislature has, we learn from *Science*, voted the sum of 120,000*l.*, to be followed by an annual grant of 10,000*l.*, to establish a school of technology in connection with the Johns Hopkins University. Our contemporary also announces a gift of 60,000*l.* to Princeton University from Mr. W. C. Proctor, of Cincinnati, for the endowment of the Charlotte Elizabeth Proctor fellowships in the graduate school. Mr. Proctor has previously given 100,000*l.* to the graduate school.

A SCHOLARSHIP of 35*l.* for one year is offered at Bedford College for Women (University of London) for the course beginning in October next. The scholar, who must hold a degree, or an equivalent certificate, will be required either to take the full diploma course at Bedford College or to pursue some special line of investigation in cognate subjects under the supervision of the lecturer in hygiene. Names of intending candidates, with particulars of previous study, should be forwarded not later than July 1 to the Principal, Bedford College, from whom further particulars may be obtained.

A CONFERENCE on diet in public secondary and private schools will be held at the Guildhall on May 13, when the Lord Mayor will preside. A provisional programme has been circulated, and it is expected the following papers will be read and discussed:—Diet

as a factor in physical, intellectual and moral efficiency, by Dr. Clement Dukes; existing methods and the main lines of reform, by Miss Robertson, Drs. Mumford and J. Sim Wallace, and Mr. Prosser; instruction in the elements of physiology and personal hygiene, by Mrs. Burn and Dr. Reddie; and problems in institutional feeding and training in institutional management, by Mrs. Stanley Hazell. Full particulars will be supplied to anyone sending a stamped addressed envelope to Mr. C. E. Hecht, National Food Reform Association, 178 St. Stephen's House, Westminster.

THE Australian Institute of Tropical Medicine is inviting applications in connection with the appointment of three new officers, one to be a laboratory expert capable of taking charge in the absence of the director, the second to be an expert in tropical hygiene and epidemiology, and the third to be a biochemist. This is the outcome of the large increase of endowment recently granted by the Commonwealth Government. Extensive new laboratories are in process of erection at Townsville, Queensland, and special wards have already been equipped in the Townsville Hospital. The first report of the director, Dr. Anton Breinl, is full of hopeful augury. An Australian diploma of tropical medicine is being established simultaneously by the Universities of Sydney, Melbourne, and Adelaide, the bulk of the teaching being entrusted to the institute. The affairs of the institute are supervised by a committee including representatives of the Governments of the Commonwealth and of Queensland, and the Universities of Sydney, Melbourne, Adelaide, and Brisbane.

THE second reading of the Education (School Attendance) Bill was agreed to in the House of Commons on April 26 by a substantial majority. The Bill provides that no child shall be allowed to leave a public elementary school below the age of thirteen, with the proviso that if a child leaves school between the age of thirteen and fourteen it shall only do so on condition that it is to enter into beneficial employment. The effect of the Bill would practically be to abolish half-time employment. It is generally admitted that the half-time system has little to recommend it so far as the great majority of districts are concerned. A recent departmental committee decided unanimously against it, and recommended its abolition. But, as the speeches in the House of Commons showed, some authorities wish to preserve the system in agricultural districts, though there has been a marked diminution of half-timers in country areas in recent years. The system is most in vogue in the textile districts of Lancashire and Yorkshire; but the debate served to demonstrate that its abolition would be greatly to the advantage of the children, and would result also in a marked improvement in the standard of the schools, where work has been retarded greatly by the regular absence from them of part of the children for a portion of the school day.

THE fourth annual report of the governing body of the Imperial College of Science and Technology, for the year ended August 31 last, has now been published (Cd. 6132). It provides interesting particulars of the progress already made in the provision of adequate accommodation for the extended work and activities of the college. The governing body has had under consideration its position as regards the Royal Commission on University Education in London, so far as it has reference to the work of the Imperial College, and has resolved that the autonomy of the Imperial College should be maintained and incorporation with the University of London should