

represented nearly 70 per cent. The very low prices obtainable for the 1931 cereal crops influence these proportions, but even taking this into consideration, cereals can be described as an important cash product on the larger farms only. The success of the small farmer, and these form the majority, is more dependent on the price of livestock and feeding stuffs than on those of cereals. Interesting comparisons are made of the organisation of the agriculture of the principal farming localities of the province: for example, central Norfolk light loams, the Norfolk 'breck', central Suffolk heavy soils, south Essex London clays, south Cambridgeshire gravels, etc. The most depressed areas are the boulder clays of Essex and Suffolk, and the clays in west Cambridgeshire and Huntingdonshire. The report deals further with main factors influencing profits and with many other subjects of interest to administrators and to farmers.

#### Electricity and the Farmer

A PAPER read by F. E. Rowland at the Royal Agricultural Show, Southampton, on July 7 and printed by the B.E.D.A. (British Electrical Development Association, Inc.) of 15 Savoy Street, W.C.2, gives helpful hints to farmers as to the best way to apply electricity to their farms. The price of the unit is taken as 2*d.*, and when it can be obtained at this price a good case is made out for using electric power. In many cases when space is limited, as in stackyards, electric drive has many advantages. 18 sheep can be sheared per unit expended, or 45 horses groomed, or 12 horses clipped. Motors can be rolled from one part of a farm to another inside wooden drums. Excellent and economical methods are given of lighting farm buildings and roads. Electrically driven pumps provide automatically a plentiful supply of water for all purposes. The use of electric milkers which require a  $\frac{1}{2}$ -h.p. motor is becoming widespread in England. In New Zealand 15,000 are in use. By the expenditure of one electric unit, 22 cows can be milked, 120 lb. of butter churned, or 1000 bottles washed. Accurate data are given as to the effect of poultry lighting in stimulating egg production.

#### A New Journal of Animal Ecology

It is gratifying to find that zoological analysis, having for long been largely confined to the laboratory, is being pushed with vigour into the open country, the obvious place for testing and resolving some of the big problems of animal life. So insistent has been the demand for space to publish the results of observations upon animal populations, their distribution, fluctuations in numbers, migrations and the like, and to concentrate observations of the kind for the convenience of field-workers and zoologists in general, that the British Ecological Society has decided to issue, twice a year, a *Journal of Animal Ecology*, under the editorship of Charles Elton, assisted by A. D. Middleton. The first number, which appeared in May from the Cambridge University Press, is an attractive volume, in appearance as well as in matter. It contains many-sided contributions, from studies of the fluctuations of insect populations in wheat and of

bird numbers on an Oxfordshire farm, to a rookery census, an analysis of the ranging habits of wood-ants, and an account of the biology of the fruit-bats of Australia. There are many illustrations, and a useful reference list contains summaries of papers dealing with animal ecology. Members of the British Ecological Society (Secretary, Dr. H. Godwin, Botany School, Cambridge) obtain the *Journal* for their subscription of 25*s.*, to non-members the price is 30*s.* The magazine promises to make a niche of its own in British zoological literature, and the interest of its outlook ought to draw many supporters. We understand that so far as suitable material is concerned its success is assured.

#### *Acta Phaenologica*

THE new bi-monthly international journal *Acta Phaenologica* aims at concentrating the hitherto scattered studies in phenology and offering an opportunity to "set forth various tendencies, stages of development, points of view of different centres of phenological experiment, and by giving a chance to consult on aims and methods, to achieve useful and active collaboration". The journal is issued under the editorship of the board of the Phenological Association of the Netherlands, and in the first part (Sept. 1931: Publ. Martinus Nijhoff, The Hague) the Secretary, Dr. H. Bos, writes on the scope and prospects of phenology. In the same number there are articles by J. Edmund Clarke on "The Cold Spring of 1929 in the British Isles" and S. Illichevsky on "The Results of the Phenological Observations at Poltava (U.S.S.R.)". The second part includes contributions from Prof. Ihne on "The Beginning of the Phenological Spring in Central Europe during the Ten Years' Period, 1921-1930", Prof. Poggenpohl on "Phenological Observations, 1886-1907", and Dr. H. Bos on "The Dropping of Small Fruits after Blooming". Contributions are accepted in English, French, or German, and each is accompanied by a translation of its title and a short summary of the contents in the two other languages.

#### Habits of the Woodpecker

ALTHOUGH a tame woodpecker is mentioned by Aristotle, the birds of this family have never been favourites with aviarists, and even the London Zoological Society, after having exhibited at different times no less than seventeen species, had been without a specimen for years until a family of the British greater spotted species arrived recently, and were accommodated with a special cage in the Bird House. Here they attract attention by their extreme activity, which is very characteristic of woodpeckers; they contrast in this respect with their nearest allies the barbets, of which several species are on view, much as tits do with finches. It is of interest to note, however, that the pair-toed feet, often supposed to be an adaptation for climbing, are to be found in the more primitive group of barbets, which do not climb, and that these peck wood when excavating a nest-hole, although their beaks are not specialised into the chisel-type of the woodpeckers' bills, and they do not

dig for food. Thus the woodpecking habit would seem to be older than the woodpecker; and that the pair-toed foot is not specially adapted for climbing is also shown in the fact that in several genera of woodpeckers the hallux or true hind-toe is absent or aborted, so that the foot ceases to be pair-toed.

#### Detecting Insect Pest Attacks

MR. A. M. MASSEE, of the East Malling Research Station, is to be congratulated on his simple methods for early detection of epidemics of certain insect pests of fruit trees (*Ann. Rep. East Malling Research Sta., 1931*, pp. 78-80). For example, attacks of caterpillar, aphid, or sucker can be detected if twigs from trees in various parts of the orchard are caused to produce growth early by placing them in water in a warm place. The growing spurs reveal the presence of pests which would not be recognisable in the ordinary way until the natural time of bud break. It is also possible to spray black currant bushes against big bud mite at the most effective moment, namely, just when the mites are migrating. A few affected branches are placed in a jar containing sand and water in the open; daily observation with a hand lens will show when the mites appear on the outsides of the buds, and so will also indicate when spraying should be performed. The idea will help materially to raise horticulture to the status of a more exact science.

#### Modern Milk Production

SUCCESS in dairy farming depends on the exercise of efficiency with economy in all departments of the industry. The main factors concerned in the cost of production are the milk-producing quality of the race and herd, the care given to breeding for milk production, housing, feeding, and general management. For the guidance of dairy herdsmen, the Ministry of Agriculture has issued a pamphlet (*Bulletin No. 52*, price 9d. net) in which all these factors are considered, and in which the most up-to-date methods of milk production are set forth clearly and in well-classified arrangement. The Ministry has had the advantage of the assistance of experts who have carried out extensive investigations into the many questions connected with the business of milk production, and it goes almost without saying that the result is an attractive as well as a highly practical guide.

#### A Serious Poultry Disease

THE Ministry of Agriculture and Fisheries issues a warning against the possibility of introducing the disease known as bacillary white diarrhoea into flocks by the purchase of infected chicks from hatcheries. Serious losses may be caused by such agency, the more to be regretted as a little preliminary precaution might have avoided the introduction of the disease altogether. It is conveyed to the chicks by infected hens through their eggs, so that it is of the utmost importance that the breeding stock should be free from the disease. Now, hens which are carriers of the disease may be recognised as such by the agglutination test, and eliminated from the breeding stock; so that a purchaser of eggs for hatching or day-old

chicks should insist that the stock from which his supplies are obtained has been declared free of reacting birds. A number of county authorities for agricultural education now accredit poultry-breeding farms where the quality of the breeding stock reaches an approved standard, and where birds have been subjected to the agglutination test according to regulations laid down by the scheme.

#### Lecture Tours at the Natural History Museum

OWING to the success achieved by the appointment of guide-lecturers at the national museums and galleries, it has been decided to inaugurate more advanced lecture tours at the British Museum (Natural History), to be conducted by members of the scientific staff of the Museum, on Mondays at 12 noon, commencing on Oct. 3. It is announced that Miss M. R. J. Edwards has been appointed official guide-lecturer at the Museum in succession to the late Mr. J. H. Leonard, who died at the end of last year (see *NATURE* of Jan. 2, p. 15).

#### Announcements

MR. W. F. HIGGINS, principal assistant of the physics department of the National Physical Laboratory, has been appointed secretary of the Laboratory in succession to Mr. F. J. Selby, who recently retired.

MISS PENELOPE JENKIN, of Newnham College, Cambridge, has been appointed by the trustees as Ray Lankester investigator at the Marine Biological Laboratory, Plymouth, for the year 1933. Miss Jenkin will attempt to correlate the rate of photosynthesis of diatom cultures immersed at different depths in the sea, off Plymouth, with photoelectric measurements of light penetration made by Dr. W. R. G. Atkins.

A DEMONSTRATION of contraceptive technique will be given at the Clinic of the Society for Constructive Birth Control on Oct. 5, at 2.30-5 P.M., to medical practitioners and senior medical students only, who will be given an opportunity of practising various methods under tuition on women patients. Lectures and demonstrations will be conducted by Dr. Beddow Bayly and Dr. Evelyn Fisher and the midwife-in-charge. Applications for tickets (which are necessary) should be made to the Honorary Secretary of the Society, 108 Whitfield Street, W.1.

APPLICATIONS are invited for the following appointments, on or before the dates mentioned:—An engineer in the Burma Marine Service—The High Commissioner for India, General Department, India House, Aldwych, London, W.C.2 (Oct. 15). A Lawrence research student for research in some subject related to the cause and cure of disease in man and animals—The Assistant Secretary of the Royal Society, Burlington House, London, W.1 (Oct. 24). A professor of chemical technology at the University of Bombay—The Secretary, Universities Bureau of the British Empire, 88A Gower Street, London, W.C.1 (Nov. 7). An assistant to teach general mechanical engineering at the Darlington Technical College—Chief Education Officer, Education Office, Darlington.