

In 1875 the Institute of Marine Biology was established by the Austrian Government, and many famous naturalists have worked in its laboratories, e.g. Metschnikoff, on intracellular digestion and phagocytosis; Kowalevsky, on medusæ; Driesch, on the development of isolated blastomeres; the brothers Hertwig, F. E. Schultze, K. Grobben, and Hatschek.

In 1900 the zoological station was enlarged and reorganised under the new director, Prof. C. I. Cori. A list of the more important investigations carried on at the laboratory from that time until 1915 is given by Dr. Stenta, but it is too long to quote here. Mention may, however, be made of Friedländer's investigation of the constitution of the purple secretion of *Murex*, for which 14,000 specimens were collected; Heider's work on the development of *Balanoglossus*; and Prziham's researches on regeneration in Crustacea. There were also several investigations in applied zoology: the culture of sponges, the coral fishery, and parasitic protozoa of fishes.

We gather from the concluding part of the address that the Italian Royal Committee for Marine Investigation, which took over the zoological stations at Trieste and Rovigno, proposes to suppress the former, and Dr. Stenta puts forward a plea for its retention.

### Animal Nutrition.<sup>1</sup>

TWO series of Research Bulletins which have recently reached this country from America provide remarkable examples of the laborious—one may almost say meticulous—methods which distinguish much of the work now being conducted at the Agricultural Experiment Stations in the United States. The bulletins in question come from the stations attached to the Universities of Missouri and Minnesota respectively. In both cases the aim was to find out by actual chemical analysis the constitution of the bodies of cattle at various ages. In the case of the Minnesota investigations, sixty-three bullocks, at all ages from three months to two years and over, were slaughtered and analyses made of the bodies, not merely as a whole, but under such divisions as flesh, offal, skin, blood, etc. In the case of the Missouri investigations, thirty animals were slaughtered and analysed in much greater detail. Separate figures for all descriptions of edible joints and for each organ of the body are given. It does not require much acquaintance with chemical routine to realise the extraordinary labour involved in reducing the separate parts of the body of an animal to a fine pulp from which uniform samples of every description of tissue can be drawn. So far as this country is concerned, the attempt has been made only once—by Lawes and Gilbert many years ago—and then with difficulty three animals in all were completely analysed.

The object of these investigations may be stated very simply. The animal food consumed by man represents vegetable food converted by stock into "meat." It is desirable to know the extent of the waste involved in this process of conversion. Incidentally, we also wish to know the relation between the amount of this waste and the age of the animal, progressively. The older and larger the animal, the greater the waste, and consequently the more costly the product. Above all, it is desirable to ascertain the relation between protein consumed

and protein stored, for the most costly food of all is vegetable protein, supplied in the form of costly oil-cakes; furthermore, as the raw material is generally imported from abroad, the economic loss in Great Britain is very great. There can be no doubt that, as matters stand, millions of money are being wasted by farmers in bringing beasts to a state of fatness required neither by the taste of the modern consumer nor by the human body's need for fat. The supplies of cheap vegetable carbohydrates, from which animal fat can be manufactured, are now greater than they were in our grandfathers' time, but the farmer still goes on producing from imported feeding-stuffs rich in protein, animal fat in wasteful quantity. More than 30 per cent. of the body weight of a "fat beast" is merely fat. Thanks to the labours of these American workers, this point can now be driven home. We can trace at every stage of an animal's growth what happens to the food it consumes, and how as it grows older its conversion factor grows smaller, until, ultimately, it stores only one-twentieth of what it consumes: how again it turns a larger proportion of costly protein into fat, rejecting more and more of nitrogenous matter.

In these days when, we are told, British agriculture is faced with ruin, it is unfortunate that agriculturists apparently cannot be persuaded to give up one of the most costly and wasteful processes of their industry. It is not the farmer alone who is to blame. Both the butcher and the housewife conspire to maintain the demand for excessively fat meat, and while the market demand is for fat stock, it is only to be expected that the present extravagant system of "fattening" beasts will continue.

### University and Educational Intelligence.

BIRMINGHAM.—Announcement is made of the Walter Myers studentship (value 300*l.* for one year) for research in any branch of medicine or pathology approved by the selection committee. The studentship is tenable at any approved university, laboratory, or other institution in the United Kingdom. Candidates may be of either sex, and must be graduates in medicine of the University of Birmingham of not more than five years' standing. The holder of the studentship will be required to devote his whole time to research. Further information may be obtained from the Dean of the Medical Faculty of the University.

CAMBRIDGE.—As announced in our issue of May 5, p. 621, a fund has been established by the family of the late Henry P. Davison, of New York, for the purpose of giving English University men a year's residence and study in the American Universities of Harvard, Yale, and Princeton. Three of these scholarships will be available for next year for Cambridge. The scholars will be selected from undergraduates or bachelors of arts now in residence, the election being on the basis of character, scholarship, and fitness to represent the University. There is to be no examination.

LEEDS.—In memory of the 326 members of the University who fell in the War, a piece of sculpture by Mr. Eric Gill, which will be fixed to the outer wall of the University Library, will be dedicated at the University on Friday, June 1. The University owes this impressive memorial to the generosity of the late Miss Frances Cross of Coney Garths, Ripon.

<sup>1</sup> Studies in Animal Nutrition; University of Missouri, Research Bulletins, 53 *et seq.* Investigations in Beef Production, University of Minnesota, Bull. 193.