

A. J. Martin, J. T. Thompson, and G. A. Hart. Mr. Silcock dealt with a new method now at work at Rothwell, in which, after removing grit, the sewage is pumped on to a revolving fine-mesh screen, then taken to deep percolating bacteria beds, then through sand filters, and discharged.

In the section of preventive medicine an important paper was read by Dr. Robertson (Birmingham) initiating a discussion on tuberculosis. He pointed out that more human suffering is due to tuberculosis than to any disease, that it was produced by infection derived from cases of phthisis, from milk, and possibly from meat, and developed slowly after the germ is taken into the system. He emphasised the importance of milk and meat in carrying infection, and pointed out that more than 30 per cent. of dairy herds are infected. In this connection more attention should be given to the ventilation of cowsheds. Dr. Woodcock (Leeds) followed with a paper on the physique of the phthisical as a means of diagnosis, whilst Dr. Trevelyan (Leeds) discussed the methods of preventing infection from those already suffering from the disease. An interesting discussion followed, and a resolution was passed "that the Health Congress wishes to direct the attention of agricultural societies to the great assistance which they might render to the community by making it one of their conditions in offering prizes for dairy cattle that the animals should be free from tuberculosis."

Subsequently papers were read on the protection of the food supply. Imported and canned foods were dealt with by Dr. H. Williams (London) and Dr. W. F. Dearden (Manchester), whilst Dr. Savage (Colchester) discussed the administrative measures for examining food supply in general, Mr. W. G. Barnes (London) advocated measures for eradicating tuberculosis from the milk supply, and Dr. Stedman explained methods of administering the "Dairies' Order." In the bacteriology section papers were contributed by Mr. J. Johnstone; on the significance of leucocytes in milk as indicating a need for detailed examination, by Dr. Savage (Colchester); on the catalase of milk as an indicator of disease, by C. Revis (London); and on the growth of the bacillus tuberculosis, by Dr. Moore and R. S. Williams (Liverpool). In the latter the important observation was made that the bacillus will only grow between certain definite limits of oxygen pressure, being equally stopped by absence of oxygen or by more than 60 per cent. To stop and kill the organisms completely about 70 per cent. of oxygen must be present, which does not interfere with the majority of other organisms tested. In the same section a joint paper was read by Prof. Grünbaum and Dr. M. Coplans (Leeds) on the selective action of preservatives, in which they discuss the effect of different preservatives on the growth of organisms. Papers were also contributed by Mr. J. C. G. Ledingham (Aberdeen), on the bacteriology of summer diarrhoea; by Dr. S. G. Moore (Huddersfield), on the advantages derived from its notification to the authorities; and by Dr. Buchan (St. Helens), on administrative measures for its reduction.

An interesting series of papers was read in the engineering and architectural section on water supply and treatment of trade water, and in the section on industrial hygiene lead poisoning, its pathology and prevention, abstracts of which, from want of space, cannot be given.

Sir Charles Cameron gave an attractive popular lecture on underground and overground air.

During the congress the University of Leeds took advantage of the occasion to confer degrees *honoris causa* on the president of the congress, Colonel T. W. Harding, and on Sir James Crichton-Browne, F.R.S., and Major Ronald Ross, F.R.S.

#### LANCASHIRE FISHERY INVESTIGATIONS.<sup>1</sup>

THE report of the Lancashire Sea-fisheries Laboratory at Liverpool for 1908 gives evidence of sustained investigation into problems that demand several years' work for their solution. The articles are in almost every case continuations of those contributed to the report of 1907, and it is therefore unnecessary in a brief review to do

<sup>1</sup> Report for 1908 on the Lancashire Sea-fisheries Laboratory at the University of Liverpool and the Sea-fish Hatchery at Piel, No. xviii. Pp. 366+0 plates. Drawn up by Prof. Herdman, F.R.S., assisted by Andrew Scott and J. Johnstone. (Liverpool, 1909.)

more than summarise the findings of the several workers on the fishery questions with which they have been so long occupied.

Prof. Herdman gives a further instalment of results obtained by tow-netting with modern nets in the Irish Sea. This method of obtaining the floating or drifting organisms is now becoming more delicate, and the catching power of the nets is more accurately known than was formerly the case. The object in view being an exact determination of the distribution and fluctuation of the "plankton," no trouble is too great and no determinations are too laborious to deter the director of the fisheries work. Accordingly, this paper contains an immense amount of data both as to methods and results with regard to the seasonal and local variations in this fauna, and also with reference to the influence of conditions upon its abundance and behaviour. The statistical work involved in such a report is very great, and the credit of these laborious tables is due to the zeal of Mr. Andrew Scott. On the whole, the results of 1908 show the correctness of the conclusions arrived at in the previous contribution to this "intensive study" of plankton round the Isle of Man, but they also demonstrate some seasonal divergences which are in all probability of considerable importance to fishermen, as affecting the arrival of spring or autumn migrants. The only criticism that we feel justified in making upon such a heavy and valuable undertaking is the absence of any analysis of the light-factors that influence plankton, but we hesitate to press this criticism, as Prof. Herdman has not published the whole of his results.

Of the more striking fishery papers, attention may be directed to Mr. Johnstone's important experiments on quarantining mussels. Mr. Johnstone has determined the degree of bacterial pollution in a number of shell-fish taken from Welsh and Lancashire bays, and finds that the contamination, though, as a rule, not serious, is probably due to general contamination of the water or sea-bed in these districts. In some cases, however, the pollution is more serious, and, by transferring these heavily infected mussels to cleaner open water, Mr. Johnstone finds that in four days' quarantine the maximum amount of sterilisation is effected. The bare fact, of course, has long been known, for oysters infected by typhoid, for instance, but this report is a continuation of that more extended investigation which is needed in order to enable fishermen themselves to increase a healthy supply of shell-fish near the larger towns. Mr. Johnstone also contributes papers on the temperatures of the Irish Sea, on the growth and migration of plaice, on parasitic growths in flat fish, and a joint paper with Capt. Weigall on the outfit of the fine new boat, *James Fletcher*, which the Lancashire Sea-fisheries Committee commissioned recently. In addition to these papers, the wider aspects of biological investigations are not overlooked, and we are glad to see that Dr. Bassett has continued his hydrographical study of the Irish Sea by a further analysis of its salinities. It is to be hoped that aid will be forthcoming to provide the Lancashire committee with a member of staff specially devoted to such work.

Lastly, reference must be made to an excellent *résumé* of the method for finding the coefficient of plankton-nets (in regard to catching power) by Mr. Dakin. This gentleman's elaborate study of Pecten, forming an appendix to this report, has been noticed already in these columns (May 6, p. 273), and we may merely, therefore, refer to it as an example of the good results obtained by bringing different methods to bear upon the study of an organism.

#### ORIGIN AND RITES OF GYPSIES.

IN the *Journal of the Gypsy-love Society* for April Miss D. E. Yates publishes a translation of a paper by Prof. R. Pischel, originally published in the *Deutsche Rundschau* for 1883, on the home of the Gypsies. Reviewing various references to the origin of this race, he comes to the conclusion, on the evidence of philology, that the Gypsy dialects are closely connected with those of Dardistan, and he accordingly fixes this region as the original Gypsy home. This view is based largely on materials collected by Drew, Biddulph, and Leitner. It is unfortunate that this opportunity was not taken to