

and at the Norwegian hatchery the rate has been even higher. At these establishments, however, the ova of the cod have alone been dealt with, and they are somewhat more delicate than those of the plaice. Nevertheless, check observations with 500,000 cod eggs at Dunbar show a death-rate under 4 per cent. The density of the water has remained practically constant at a little over 1027; the temperature, which at the beginning of March was 4°·5 C., has gradually risen to 6°·3 C., and the hatching process is becoming accelerated.

So far as can be judged at this period, it is probable that the "turn-out" of young plaice during the present season will exceed 30,000,000—a much larger number than has been turned out in the first year at any other sea-fish hatchery. In Norway the first year's issue was 5,095,000 cod (it is now over 200,000,000), and at the Newfoundland establishment it was 17,000,000 cod. This is the first occasion in which plaice, or indeed any flat-fish, have been hatched on a large scale. It was anticipated that there might be difficulties in getting the fishes to spawn under the somewhat unnatural conditions; but none occurred. It is expected that, in the course of the summer, when the spawning period of the plaice is over, that somewhat valuable fish, the common sole—which is rare in Scottish waters—will be dealt with, as well as the lemon sole, and possibly the turbot. All these fish are becoming scarcer and dearer.

The present plant at the Dunbar hatchery—viz., the spawning pond, filtering apparatus, boiler, pumps, &c.—is adapted for a hatching house about three times as large as the present one. When the latter is extended, and the hatching apparatus increased, there will be no difficulty in turning out many hundreds of millions of the fry of the food-fishes every year. The actual hatching—and in many cases the rearing—of almost all the food fishes, has been accomplished for scientific purposes by Prof. McIntosh at the neighbouring laboratory at St. Andrews, and the experience thus gained will be of the greatest utility in carrying on the work from the commercial point of view. It is anticipated that large rearing ponds will be added, to enable the young flat-fish to be kept until they assume the habits of the adult, and thus greatly increase the usefulness of the establishment to the fishery industry.

T. WEMYSS FULTON.

THE FORTHCOMING CONGRESS OF HYGIENE AND DEMOGRAPHY.

FROM a circular just received, we learn that satisfactory progress has been made with the arrangements for the eighth International Congress of Hygiene and Demography, to be held at Budapest, from September 1 to 9. The work of the Congress will be carried out in two divisions, relating respectively to hygiene and demography. Hygiene comprises nineteen, and demography seven, sections. In Section I. of the former division (the etiology of infectious diseases, or bacteriology), notices of thirty papers had been received up to March 31; in Section II. (the prophylaxis of epidemics), thirty-six papers are at present announced; in Section III. (the hygiene of the Tropics), twelve papers; in Section IV. (the hygiene of trades and agriculture), twenty-nine papers; in Section V. (the hygiene of children), twenty-eight papers; in Section VI. (the hygiene of schools), thirty-nine papers. Thirty-six papers have been notified in Section VII. (articles of food); thirty-eight in Section VIII. (the hygiene of towns); eleven in Section IX. (the hygiene of public buildings); nine in Section X. (the hygiene of dwellings); seventeen in Section XI. (the hygiene of communications, that is, of railroads and navigation), and twenty-four in Section XII. (military hygiene). Fourteen papers are promised on the saving of life (Section XIII.), thirty-three on State hygiene (Section XIV.), six on the hygiene of sport (Section XV.), twenty on the hygiene of baths (Section XVI.), thirty-eight on veterinary matters (Section XVII.), seventeen on pharmacology (Section XVIII.), and eleven on general sanitarian affairs (Section XIX.).

The demographic sections of the Congress are (1) historical demography; (2) general demography and anthropometry; (3) the technicalities of demography; (4) the demography of the agricultural classes; (5) the industrial workmen from a demographic point of view; (6) the demography of towns; (7) the statistics of bodily and mental defects. Papers for each of these sections have been received or promised. Up to the end of

March the total number of papers announced was 535, of which 437 belong to the hygiene division, and 98 to demography. There seems every probability that the Congress will be a worthy success or to former ones as regards the scientific value of the work, and its international character is vouched for by the fact that nearly 250 official delegates have been nominated.

In accordance with a resolution passed at the Congress of Hygiene and Demography held in London in 1891, an international committee has been formed to prepare for discussion questions relating to the cause and prevention of diphtheria. This committee contains the representatives of fifteen different nationalities, as follows:—Austria, Prof. Wiederhofer; Bavaria, Prof. Henry Ronde; Belgium, Dr. E. Tordeus; England, Dr. Edward Seaton; France, Dr. F. Roux; Germany, Prof. Frederic Löffler; Hungary, Dr. Cornelius Chyzer; Italy, Prof. Luigi Pagliani; Norway, Prof. Axel Johanessen; Roumania, Prof. Maldarescu; Russia, Prof. Nicolas Filator; Spain, Prof. Francisco Criado y Aguilar; Sweden, Prof. E. Almquist; Switzerland, Prof. Haganbach-Burkhardt; United States of America, Prof. S. Billings.

An exhibition will be held in connection with the Congress, but only of objects which serve to elucidate and exemplify questions brought up for discussion, and those which mark real progress in sanitary matters and public health. This is done in order to prevent the exhibition from becoming a vehicle for trade advertisement. No awards will be made, but objects of special importance will be named in the minutes of the closing meeting. No charge will be made for space, and objects sent in are duty free. Intending exhibitors must give notice before May 15 to the General Secretary, Prof. Dr. Coloman Müller, St. Rochus Hospital, Budapest, who will supply the proper application forms.

Membership of the Congress can be obtained by transmitting the amount of £1 (for ladies the sum is 10s.) to Prof. Müller. This fee entitles the sender to admission to all the meetings, excursions, and various social gatherings arranged, to a copy of the Proceedings of the Congress, and to railway journeys at reduced rates.

The Corporation of Budapest will hold a reception in the halls of the Town-Redoute, and a garden party in the grounds of the National Museum. All the learned societies and bodies interested in the work of the Congress have also made arrangements for receptions. At the Royal Opera House, the National Theatre, and the People's Theatre, special representations will be given in honour of the meeting; in fact, there is every reason for believing that members will come away with a favourable impression of Hungarian hospitality. As to the more serious side of the meeting, the list of papers down to be read shows that there will be no dearth of subjects for discussion. A number of important questions will therefore be ventilated, and even if many of them fail to elicit a definite opinion, a clearing of ideas is bound to result from their discussion.

SEWER GAS AND TYPHOID FEVER.

IT is now more than thirty years ago since two eminent physicians discussed, with some heat, in the columns of the medical papers and elsewhere their theories on the origin and distribution of typhoid fever. While Dr. Murchison and his party regarded the exhalations from drains as the *specific cause* of typhoid, Dr. Budd and his supporters argued that the gases from putrid liquids were only capable of producing this disease in the presence of some particular contagion. The discussion was taken up on the continent, and the sewer-gas theory was vigorously fought over, but towards 1880 the whole subject was revived, and its supporters were later confronted with the results of bacteriological investigations on sewer-air, which showed that there were not more organisms present in drains than in the outside air, and that under normal conditions, currents of air were unable to detach disease microbes, should they be present, from the effete materials present in the sewer.

Meanwhile English hygienic authorities, without waiting for the scientists to make up their minds on this crucial question, preferred to act, at any rate, on the assumption, supported as it was by much experience and many facts, that the exhalations from drains were undesirable and dangerous in our houses and surroundings, and should be rigorously excluded. The advance in sanitation, and its splendid results during the past ten years or so, is a sufficient testimony to the wisdom of the