

The Fourth International Congress of Entomology.

THE fourth International Congress of Entomology, held at Ithaca, New York, on Aug. 12-18, was much more largely attended than any of the previous congresses of entomology. More than 650 delegates and associates were registered, and 36 different countries were represented. Unlike the Zurich congress of 1925, France, Italy, and Belgium sent official delegates. In all, more than one hundred persons came from foreign countries. The largest foreign delegations were those of England, France, Spain, Germany, and Russia. Very many Canadian entomologists were present, and Canada really joined with the United States in welcoming to North America the delegates from other parts of the world.

Ithaca proved to be an ideal place for the Congress. The buildings of Cornell University are admirably adapted to such gatherings; the summer climate is a good one; the so-called Finger Lake region of New York is one of great interest to naturalists, and the scenic beauty of that part of the State is very great. Since Cornell had experienced the organisation work for an international congress two years ago, when the botanists met there, every need was anticipated, and the delegates from abroad expressed themselves as greatly pleased by all of the arrangements and by the courtesy and hospitality shown by the people.

Many of the older European entomologists were absent. Lameere, of Belgium, the president of the first Congress, held at Brussels in 1909; Poulton, of England, president of the second Congress, held at Oxford in 1912; Handlirsch, of Austria, who would have been president of the Congress at Vienna in 1915 had it not been abandoned on account of the War; and von Schulthess, of Switzerland, president of the third Congress, held at Zurich in 1925, were all regrettably absent. But a large number of younger men were present, all of them being well known by their admirable published work.

Many notable papers were read at the morning general sessions. The speakers at these sessions were: René Jeannel of Paris, Karl Jordan of England, Ivar Tragardh of Sweden, E. L. Bouvier of Paris, Erich Martini of Hamburg, Walther Horn of Berlin, Filippo Silvestri of Italy, W. M. Wheeler of Harvard, W. J. Holland of Pittsburgh, M. N. Rimski-Korsakov of Leningrad, H. C. Effatoun of Egypt, E. F. Tén of Connecticut, C. L. Marlatt of Washington, F. Heikeringer of Vienna, R. J. Tillyard of Australia, and A. D. Imms of Rothamsted.

The sectional meetings, which were held during the afternoons, carried out very full programmes. There were so many entomologists present who were interested in the economic phases of the science that it was necessary to establish several sub-sections under the Section of Economic Entomology. I was not able to attend any of the sectional meetings, but, judging from what I have heard, there was a very important forum on nomenclature, which was led by Dr. Stiles, the secretary of the International Commission on Zoological Nomenclature. Mr. J. E. Collin, president of the Entomological Society of London, advanced a protest against the use of abbreviations in descriptions, which excited much discussion, although the delegates nearly unanimously supported the speaker. Mr. F. W. Edwards, of the British Museum (Natural History), gave a most interesting account of his recent expedition to Patagonia, in which he brought out many points bearing upon the theory of a past land connexion between South America and Australia. Dr. Walther Horn's paper on the future of insect taxonomy was rather pessimistic, but proposed the

formation of an international institute to form a clearing-house for entomological information.

In the forum on problems of taxonomy there was an active discussion of the question as to whether types should be deposited in one or two large museums or distributed in regional museums. An important paper on some effects of temperature and moisture upon the activities of grasshoppers and their relation to grasshopper damage and control was read by Dr. J. R. Parker of Montana; and J. W. McColloch and W. P. Hayes of Kansas discussed the problem of controlling underground insect pests. Dr. W. J. Baerg of Arkansas reported upon the general subject of the poisonous Arthropods of North and Central America in a paper which shed great light upon this much discussed subject. A. d'Orchymont of Brussels, P. Vayssière of Paris, J. P. Kryger of Denmark and Dr. James Waterston of the British Museum, read excellent papers in the Section of Systematic Entomology and Zoogeography. The Section of Forest Insects was fortunate in hearing papers from the well-known forest entomologists, Unio Salas of Finland, H. Eidman of Munich, and I. Tragardh of Sweden. The latter's paper on "Some Methods of analysing the Fauna of a Dying Tree" was of great value.

In fact, the whole programme was filled with interesting papers and discussions which would have interested the readers of NATURE greatly, and I am sorry that more space cannot be devoted to them.

I am sorry also, although I highly appreciate his courtesy, that the Editor of NATURE did not invite a European, instead of me, to write this account, since were I to emphasise many of the delightful features of the Congress, it would appear like the boasting of a prejudiced American. Expeditions in groups were made to Niagara Falls, to many of the picturesque spots of central New York, to Pittsburgh, Philadelphia, Washington, New York, and Boston, and a number of the delegates took long journeys into the far west. The members of the Congress greatly regretted the absence of R. Stewart MacDougall, of Edinburgh, who wrote for NATURE the delightful account of the Congress in Zurich in 1925, in which he played a very important part.

The European visitors were received, on landing at New York, by a committee composed of members of the New York and Brooklyn Entomological Societies and were given a formal dinner at the American Museum of Natural History. Those landing from the first vessel were taken on expeditions up the Hudson River and to various neighbouring points of interest.

After the Congress, a large party of delegates was received at the Carnegie Museum of Pittsburgh and given a formal dinner by Dr. W. J. Holland, the emeritus Director of the Museum. At Washington a special meeting of the Entomological Society of Washington was held which was attended by more than 200 entomologists. This meeting resolved itself into an intimate discussion of the entomological societies of the world, of their methods of procedure, and of the conditions of entomological science as represented by these widely spread organisations. At Washington also, in addition to visits to the U.S. National Museum, the U.S. Department of Agriculture, and places of historic interest, a reception and supper were given at the National Zoological Park, and a special expedition was taken to Plummers Island, a spot in the Potomac River north-west of Washington rather renowned for its interesting insect fauna, since here a remarkable mixture of southern

and northern forms occurs. Following these Washington meetings the delegates dispersed, many of them returning to New York for embarkation, others visiting other parts of the country. The well-known authorities on cave insects, Dr. René Jeannel of Paris and Dr. Candido Bolívar of Madrid, started for an exploration of the great caves of Indiana and Virginia in company with Mr. Herbert Barber and Dr. Harold Morrison of the U.S. National Museum.

I should not, perhaps, write of the address of the president of the Congress at Ithaca, since I held that office myself, but that the principal theme of the address was the necessity for a reform in the teaching of zoology in the colleges and universities, so that entomology should receive vastly greater attention.

As it happened, the fourth day of the meeting coincided with the eightieth birthday of Dr. W. J. Holland. A dinner was given him by some of his scientific friends and admirers, and he was elected one of the fifteen honorary members of the International Congresses. Dr. S. A. Forbes, the dean of the economic entomologists of the United States, now eighty-four years of age, was also made an honorary member. The Congress also adopted resolutions of sympathy and respect addressed to Prof. J. H. Comstock of Cornell (aged seventy-nine) and Dr. E. A. Schwarz of Washington (aged eighty-three).

Other resolutions were passed by the Congress.

By far the most important step taken in regard to entomological nomenclature was a resolution by the Congress conferring upon the Committee of Nomenclature of the Entomological Congress judiciary powers to hand down opinions on cases of entomological nomenclature in accord with the International Rules of Zoological Nomenclature. It is understood that the entomological committee and the International Commission will co-operate; that in the future the Committee will handle most of the cases of entomological nomenclature and will refer to the International Commission only those cases involving pronounced differences of opinion, or undetermined principles, or the relations of nomenclature in entomology to nomenclature in other groups.

The Congress also adopted certain definite recommendations regarding family names, these recommendations to be referred to the International Commission with approval; and it referred certain other proportions to the Commission without prejudice.

I have attended fourteen international congresses of scientific men, and I have never seen at any of them such great enthusiasm and so obvious a spirit of hearty co-operation. Surely mutual understanding among the scientific men of the world is fostered greatly by these gatherings and makes for world peace.

L. O. HOWARD.

The Fisheries of Australia.

A RECENT statement from the Australian Development and Migration Commission throws light on the interesting position of the fishing industry in Australian waters.

The history of this industry shows a succession of failures to establish what should be a thriving part of Australian life. In 1907 the Commonwealth Government appointed a director of fisheries and provided a research trawling vessel, the *Endeavour*, to investigate the possibilities of trawling in the southern seas. After a number of experimental cruises, during which it was established that valuable fishing grounds existed in the Australian Bight and off Cape Howe, the *Endeavour* was lost at sea with all hands, including the Director of Fisheries, in December 1914. The trawler was not replaced, and little further was done by the Commonwealth Department of Fisheries.

In 1915 the New South Wales Government decided to establish a State trawling industry with seven steam trawlers as the nucleus of a trawling fleet. Despite the fact that some of the richest trawling areas in the world, namely, those extending southwards from Port Stephens to Gabo Island, were revealed by the operations of the State trawlers, the venture was not a commercial success, and in 1923 the trawlers were disposed of to a number of private companies. These companies have since successfully exploited the Sydney and Newcastle fish markets and show signs of extending their fields of operation. Queensland also undertook State trawling in 1919, and good trawling areas were located between Cape Moreton and Caloundra. In other States, however, the fishing industry has failed to develop to the degree shown possible by fish imports. It is an anomaly, indeed, that a nation which imports annually fish valued at more than £1,500,000, and has an adequate supply of good edible fish around its coast, should fail to exploit such excellent natural resources.

This feature has been clearly realised by the Development and Migration Commission, which deals with the development of industry within the Commonwealth, as a prior necessity for increased migration.

At the instance of the Commission, the first Australian Fisheries Conference was held in September 1927. This was attended by representatives of the Commission, of the Commonwealth Council for Scientific and Industrial Research, and of the departments of fisheries of the various Australian States. It was decided that a complete programme of development must include not only trawling and related industries, but also studies of transport, distribution, and marketing of fish, of uniform laws and regulations affecting the capture of fish, and of factors of destruction in fisheries. The establishment of marine biological stations and the cultivation of oysters, crayfish, and turtles were also considered. After a thorough discussion of the position in each of these branches, committees were appointed to go fully into each subject and to make recommendations to the second Australian Fisheries Conference, which is to be held during this year.

The field borders, on one side, those questions in marine biology to be studied by the British Association Expedition to the Great Barrier Reef, and on the other, economic investigations of trawling and the difficult problems of transport and distribution.

These terms of reference are clearly very wide and, in the present inquiries, close attention is being given to the mass of knowledge and experience which has been accumulated in European and American fisheries. While much of the data from these sources is capable of direct application to Australian conditions, there are numerous scientific and commercial problems which are peculiar to the southern waters.

Refrigeration applied to fish taken from Australian sea waters does not always give the same satisfactory results as when fish from colder and less saline waters are treated. Thus, although Atlantic salmon may be satisfactorily stored in a frozen state for up to two years, it has been stated that the Australian flat head becomes practically worthless after removal from a few months of cold storage. The reason for this difference is not clear, but it appears to be partly dependent on marine temperature and salinity. In