

WORLD'S FISHERIES CONGRESS.

1.—REPORT OF THE SECRETARY OF THE GENERAL COMMITTEE.

Hon. MARSHALL McDONALD,

U. S. Commissioner of Fish and Fisheries:

SIR: The World's Congress Auxiliary of the World's Columbian Exposition of 1893, having extended an invitation for the assembling in Chicago, during the period of the Exposition, of persons interested in the various departments of human activity in all countries, a number of persons charged with duties, either directly or indirectly associated with the fisheries and fish-culture of the United States and foreign countries, concluded to utilize the opportunity thus presented by establishing a Fisheries Congress.

The preliminary meeting was held in Chicago on April 25, 1893, at which were present Hon. Marshall McDonald, U. S. Commissioner of Fish and Fisheries; Dr. G. Brown Goode, Assistant Secretary of the Smithsonian Institution, in charge of the U. S. National Museum; Prof. S. A. Forbes, director of the Illinois State Laboratory of Natural History, and Dr. Tarleton H. Bean, assistant in charge of the Division of Fish-culture of the U. S. Fish Commission and representative of the Commission at the World's Columbian Exposition.

On motion of Dr. Goode, Marshall McDonald was elected chairman and Dr. T. H. Bean secretary of the general committee on organization, Dr. Goode and Prof. Forbes constituting the other members of the committee present. Upon Dr. Goode's motion, seconded by Prof. Forbes, Mr. E. G. Blackford, of New York City, Capt. J. W. Collins, chief of the Department of Fish and Fisheries at the World's Columbian Exposition, Mr. R. E. Earll, and Mr. N. K. Fairbank were proposed as additional members of the general committee. A resolution was passed providing that three members should constitute a quorum for the transaction of business.

Many names of persons interested in the objects of the Congress were proposed for membership in the advisory council. The list included leaders in science, the fisheries, and fish-culture, in the United States and other countries.

The members of the general committee then outlined a provisional list of topics suitable for the occasion. The synopsis presented included:

The Administration of the Fisheries;

The Methods Employed in the Capture and Utilization of Fishery Products;

The Relation of Scientific Investigation to the Fisheries and Fish-culture;

A General Inquiry into the Subjects of Fish-culture and the Present Condition of the World's Fisheries.

The chairman appointed Dr. G. Brown Goode, Prof. S. A. Forbes, Capt. J. W. Collins, and Dr. T. H. Bean a committee to prepare a program of subjects appropriate for discussion; after which the committee adjourned, subject to the call of the chairman.

The president of the World's Congress Auxiliary (Hon. Charles C. Bonney) was advised of the preliminary steps taken by the general committee, and notices were sent to the persons named informing them of their selection by the World's Congress Auxiliary for the duties mentioned. Those who accepted the nomination to membership upon the general committee were Marshall McDonald, G. Brown Goode, S. A. Forbes, E. G. Blackford, Tarleton H. Bean, and R. E. Earll.

The second meeting of the general committee was held in the office of the U. S. Fish Commission exhibit at the World's Fair, June 19, 1893. At this meeting the secretary of the general committee was requested to draw up a preliminary circular defining the nature and aims of the Congress. A discussion of this circular was entered into and a draft of the main subjects was prepared by the committee.

The third meeting was held in the office of Mr. E. G. Blackford, Fulton Market, New York, July 30, 1893. At this meeting additions were made to the list of members of the advisory council, and the secretary was appointed chairman of a local committee of arrangements, with power to select two other members from the general committee, these members to make all of the necessary arrangements for the meetings of the Fisheries Congress. As the range of topics suggested a natural division into five sections, it was proposed to select chairmen for these groups of topics, and the following persons were nominated to act as chairmen:

Section 1: Fishery laws and regulations, Dr. William M. Hudson, Hartford, Conn.

Section 2: Science in relation to the fisheries and fish-culture, Dr. G. Brown Goode, Washington, D. C.

Section 3: Methods employed in the capture and utilization of fishery products, Dr. Hugh M. Smith, Washington, D. C.

Section 4: Fish-culture, Hon. E. G. Blackford, New York City.

Section 5: The World's fisheries, Dr. Tarleton H. Bean, Washington, D. C.

All of these persons accepted the nomination and assisted in the collection of papers to be read at the meetings. It was afterwards, however, found expedient to combine Sections 3 and 5, and Dr. Smith served as chairman during the session devoted to these groups. Meanwhile the president of the World's Congress Auxiliary assigned to the Fisheries Congress a place on the program of the agricultural congresses and fixed upon the week beginning October 16 as the period for holding the sessions.

The fourth meeting of the general committee was held in the office of the U. S. Fish Commission exhibit, Jackson Park, on September 24. There were present Messrs. E. G. Blackford, S. A. Forbes, and Tarleton H. Bean. Mr. Blackford acted as chairman of the meeting. Arrangements for the hour and date of the meetings of the Congress were assigned to the secretary of the general committee, but, upon motion of Prof. Forbes, an evening session was decided upon for October 17. The subject of a fish banquet was informally discussed and was deferred until the meeting of the local committee at the office of Mr. A. Booth, of Chicago, on Monday, September 25. Prof. Forbes was appointed a committee to make the arrangements for such meetings as might be necessary to be held in the World's Fair Grounds.

The fifth and last meeting of the committee took place in the office of the U. S. Fish Commission exhibit on Thursday, September 26. The following persons were present: E. G. Blackford, A. Booth, D. R. Cameron, R. E. Earll, George F. Kunz, and Tarleton H. Bean, several members of the advisory council having been invited to meet with the committee to complete preparations for the Congress. Mr. Blackford acted as chairman.

The secretary read the list of papers promised for the Congress. The arrangements for the meetings were announced by the chairman and the subject of the fish banquet was discussed by Messrs. Blackford, Booth, Cameron, Kunz, and others. The chairman appointed the following committee to arrange for the banquet, and the committee was given power to act: Messrs. A. Booth, D. R. Cameron, R. Edward Earll, George F. Kunz, and Tarleton H. Bean. The chairman was also requested to act with this committee and consented to do so. The committee on invitations, consisting of Messrs. Booth, Earll, and Bean, was then appointed. The question as to the time to be devoted to the reading and discussion of papers was considered, and it was decided to leave this matter to the control of the chairman of the Congress.

As soon as the general committee was regularly organized the following preliminary address was sent to members of the advisory council, and other persons whose coöperation in the work of the Congress was desired. This was accompanied by a letter from the chairman of the committee inviting participation in the objects of the Congress and contributions to the series of articles:

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION OF 1893.

{ President, Charles C. Bonney; Vice-President, Thomas B. Bryan; Treasurer, Lyman J. Gage; }
 { Secretaries, Benj. Butterworth and Clarence E. Young. }

DEPARTMENT OF AGRICULTURE.—GENERAL DIVISION OF FISH AND FISHERIES.

Preliminary Address of the General Committee on a Fisheries Congress in connection with the World's Columbian Exposition.

In accordance with the plans of the World's Congress Auxiliary of the World's Columbian Exposition, arrangements have been made for an International Congress of persons interested in fisheries and fish-culture at Chicago, commencing October 16, 1893.

The term fisheries, for the purposes of this circular, is intended to include every form of life in the waters of the globe which is now, or has been, the object of industry, considered in all its relations to associated life. Fish-culture is understood to refer to the increase and distribution of economic forms of aquatic life. Fisheries and fish-culture are intimately associated with various departments of science—historical, physical, social, and political—and it is proposed to discuss them with reference to such association.

Thus the deliberations of the Congress will cover a wide range of subjects, which may be suggested under the following subdivisions:

1. Fishery laws and administration of the fisheries, comprising: (a) state laws; (b) interstate regulations; (c) national laws; (d) international law and international equity.
2. The sciences in relation to fisheries and fish-culture: (a) biology; (b) physics; (c) chemistry; (d) geography; (e) climatology.
3. Methods of capture, utilization, and distribution of fishery products.
4. Fish-culture: (a) private; (b) public.
5. The world's fisheries.

The committee in this general way presents an outline of the proposed nature of the Congress, and suggests below a series of topics which it deems suitable for discussion. Additional themes will be furnished with the assistance of members of the advisory council, and are requested from persons who receive this circular.

1. FISHERY LAWS, ETC.

The necessity of placing oyster-planting grounds other than natural beds under private ownership and control, in order to secure the largest and most regular production.
 Should government, state or national, farm the waters?
 How shall we deal with the purse-seine and pound-net fisheries?
 Why transportation companies should aid in the distribution of fish.
 The utility and results of legislation for the ocean fisheries.

2. THE SCIENCES IN RELATION TO FISHERIES, ETC.

The scope, aims, methods, and apparatus of economic aquatic biology.
 The system of life in waters.
 The purpose, plans, and uses of a station for marine research. The obligation of government to maintain such stations.
 The obligation of governments to prosecute marine research and deep-sea explorations
 A program for a model lake survey.
 A program for a model survey of a river system.
 The migrations of fishes.
 The distribution of economic fishes.
 The aquarium; its installation and management.

3. METHODS OF CAPTURE, ETC.

Description of methods and apparatus employed in the fisheries.
 Influence of methods upon abundance.
 Improvements in fishing vessels and apparatus.
 Economical value of marine products.
 Preparation, care of, and manufacture of fishery products: (a) the market fishery; (b) refrigeration; (c) drying fish; (d) salting fish; (e) canning industry; (f) utilization of skins and other parts of marine objects—furs, whalebone, sounds, ambergris, oil, etc.; (g) fish guano.
 Transportation of fishery objects and products.
 The utilization of new and waste products of the fisheries.
 The question of bait and bait preservation in the offshore fisheries.

4. FISH-CULTURE.

A review of fish-culture in Europe and in North America.
 The scientific foundations of fish-culture.
 The present state and principal defects of scientific fish-culture.
 General conditions involved in stocking new and restocking depleted waters.
 Comparison of methods employed in packing and transporting fish ova.
 Cheaper and better food for rearing fish.
 The conditions determining whether to plant impregnated eggs, fry, or fingerlings.
 The methods and results of artificially breeding food for fish.
 Comparison of methods in oyster-culture in the United States and in foreign countries.
 The need of a government oyster-cultural station. What should be its general plan and arrangement; what it may be expected to accomplish in the way of example and instruction.
 The relative value of artificial propagation, and regulation and protection in maintaining the lobster fisheries.
 The necessity of affording proper instruction to students in fish-culture.
 Fish-culture as applied to the maintenance or regeneration of the ocean fisheries.
 Economic results of acclimatization of aquatic products.

5. THE WORLD'S FISHERIES.

Review of the world's fisheries.
 (a) The mollusk fisheries (squid, oyster, pearl, clam, abalones, scallop, periwinkles, snail, unios, etc.).
 (b) The sponge fishery.
 (c) The crustacean fishery (lobster, crab, shrimp, prawn, crayfish, etc.).
 (d) The amphibians and reptiles (frogs, turtles and terrapins, alligators, etc.).

(e) The mammals (whales, porpoises, seals, walrus, otters, etc.).

(f) The fishes (cod family, herring family, mackerel family, the *Sciænidae*, the mullets, the salmon family, the perch-like fishes, the *Siluridae*, the pikes, the carps, the sturgeons, the eels, sharks, skates, etc.).

Fishery statistics in general.

The relation of fisheries to civilization.

The relation of the fisheries to the navy and the merchant marine.

The fishermen; their physical and financial conditions and the means for their improvement.

The duty of the general government in the matter of a fisheries intelligence service.

The question of the desirability of establishing technical training schools for fishermen.

Fishermen's associations, unions, libraries, etc.

MEMBERS PROPOSED FOR ADVISORY COUNCIL OF FISHERIES CONGRESS.

UNITED STATES.

- | | |
|---|---|
| Hon. J. T. Morgan, Alabama. | E. A. Brackett, Winchester, Mass. |
| J. D. Redding, San Francisco, Cal. | Judge A. B. French, Boston, Mass. |
| Leon Sloss, San Francisco, Cal. | Clarence B. Mitchell, President Boston Fish Bureau, Boston, Mass. |
| F. R. Callicotte, Denver, Colo. | Dr. Joel C. Parker, Grand Rapids, Michigan. |
| Gordon Land, Denver, Colo. | Prof. Jacob E. Reighard, Ann Arbor, Mich. |
| Prof. S. I. Smith, Yale College, New Haven, Conn. | H. M. Garlichs, St. Joseph, Mo. |
| Prof. A. E. Verrill, Yale College, New Haven, Conn. | E. B. Hodge, Plymouth, N. H. |
| Dr. W. M. Hudson, Hartford, Conn. | Col. Nicolas Pike, Brooklyn, N. Y. |
| Prof. W. O. Atwater, Middletown, Conn. | A. N. Cheney, Glens Falls, N. Y. |
| Hon. John W. Foster, Washington, D. C. | James F. Annin, Caledonia, N. Y. |
| Prof. Theo. Gill, Washington, D. C. | Dr. Bashford Dean, New York City. |
| Dr. C. H. Merriam, Washington, D. C. | Edward P. Doyle, New York City. |
| Dr. T. C. Mendenhall, Washington, D. C. | George B. Grinnell, New York City. |
| Hon. J. Sterling Morton, Washington, D. C. | L. D. Huntington, New York City. |
| Richard Rathbun, Washington, D. C. | William C. Harris, New York City. |
| Dr. Hugh M. Smith, Washington, D. C. | Charles F. Imbrie, New York City. |
| Hon. F. M. Stockbridge, Washington, D. C. | Prof. John B. Moore, Columbia College, New York City. |
| Hon. Samuel Fowler, Washington, D. C. | Robert B. Roosevelt, New York City. |
| Commander Z. L. Tanner, U. S. N., commanding U. S. F. C. steamer <i>Albatross</i> . | Roland Redmond, New York City. |
| Hon. Edwin Willits, Washington, D. C. | Prof. H. F. Osborn, Columbia College, New York City. |
| A. Booth, Chicago. | H. B. Vincent, McConnelsville, Ohio. |
| N. Rowe, Chicago. | H. C. Ford, Philadelphia, Pa. |
| Prof. C. O. Whitman, Chicago. | Prof. John A. Ryder, Philadelphia, Pa. |
| Dr. S. P. Bartlett, Quincy, Ill. | Prof. Edward Linton, Washington, Pa. |
| J. Fry Lawrence, Louisville, Ky. | A. M. Spangler, Philadelphia, Pa. |
| Prof. Leslie Lee, Brunswick, Me. | Daniel T. Church, Tiverton, R. I. |
| Charles G. Atkins, East Orland, Me. | Hon. Richard Coke, U. S. Senate, Washington, D. C. |
| Prof. W. K. Brooks, Baltimore, Md. | C. F. Orvis, Manchester, Vt. |
| W. L. Gilbert, Plymouth, Mass. | Hon. W. C. Squire, Washington, D. C. |
| Prof. Alexander Agassiz, Cambridge, Mass. | Philo Dunning, Madison, Wis. |

FOREIGN.

- | | |
|--|--|
| Dr. H. Burmeister, Buenos Ayres, Argentine Republic. | Prof. E. Ray Lankester, Oxford, England. |
| Dr. Franz Steindachner, Vienna, Austria. | Dr. Albert Günther, London, England. |
| Prof. Van Beneden, Brussels, Belgium. | Sir Edward Birkbeck, Norfolk, England. |
| President Soc. d' Pisciculture de Belge, Brussels, Belgium. | W. Oldham Chambers, Norfolk, England. |
| Sir Charles Tupper, Ottawa, Canada. | C. E. Fryer, England. |
| Samuel Wilmot, Ottawa, Canada. | Spencer Walpole, England. |
| Dr. W. Wakeham, in charge of Canadian Fisheries Protective Service, Ottawa, Canada. | Dr. Oscar Nordqvist, Helsingfors, Finland. |
| Dr. G. A. MacCallum, president Ontario Fish and Game Commission, Dunnville, Ontario. | Dr. Andre-Jean Malmgren, Uleaborg, Finland. |
| Dr. C. F. Lütken, Copenhagen, Denmark. | Prof. Jaadore Geoffroy St. Hilaire, Paris, France. |
| Dr. C. S. Joh. Petersen, Copenhagen, Denmark. | Prince of Monaco, Paris, France. |
| Prof. T. H. Huxley, London, England. | Dr. Léon Vaillant, Paris, France. |
| Prof. William H. Flower, London, England. | Prof. Alphonse Milne-Edwards, Paris, France. |
| R. B. Marston, London, E. C., England. | M. Raveret-Wattel, Paris, France. |
| Sir John Lubbock, London, England. | Prince von Hatzfeldt, Berlin, Germany. |
| | Dr. Karl Möbius, Berlin, Germany. |
| | Max von dem Borne, Berneuchen, Germany. |

MEMBERS PROPOSED FOR ADVISORY COUNCIL OF FISHERIES CONGRESS—Continued.

FOREIGN—Continued.

Dr. Franz Hilgendorf, Berlin, Germany.
 Prof. Ernst Haeckel, Jena, Germany.
 Sir Thomas Brady, Dublin, Ireland.
 Prof. A. C. Haddon, Dublin, Ireland.
 Rev. W. A. Green, Dublin, Ireland.
 Dr. Antonio Della Valle, Modona, Italy.
 Prof. P. Doderlein, Palermo, Italy.
 Dr. Anton Dolara, Naples, Italy.
 Commendatore Enrico Hiller Giglioli, Florence, Italy.
 Prof. A. Targioni Tozzetti, Florence, Italy.
 Dr. Decio Vinciguerra, Rome, Italy.
 Dr. K. Mitsukuri, Tokio, Japan.
 K. Ito, Hakodate, Japan.
 C. Sasaki, Tokio, Japan.
 Prof. Alfred Dugès, Guanajuato, Mexico.
 Señor E. Chazari, Superintendent of Fisheries, Mexico.
 Prof. A. A. W. Hubrecht, Utrecht, Netherlands.
 Dr. P. P. C. Hoek, Helder, Netherlands.
 Rev. M. Harvey, St. Johns, Newfoundland.
 Sir Ambrose Shea, St. Johns, Newfoundland.
 Prof. Edward Payson Ramsay, Commissioner of Fisheries,
 N. S. Wales, Sydney.
 Prof. Geo. O. Sars, Christiania, Norway.
 Prof. Robert Collet, Christiania, Norway.
 A. Landmark, Christiania, Norway (Inspector Inland
 Fisheries).
 S. A. Buch, Bergen, Norway.

Frederick M. Wallem, Norway.
 Capt. G. M. Dannevig, Norway.
 Dr. Nicolas Borodine, Fish Commissioner for Ural District,
 Constant, Uralsk, Russia.
 Dr. Oscar von Grimm, St. Petersburg, Russia.
 S. Herzenstein, St. Petersburg, Russia.
 Prof. Ovsjannikoff, Imperial Academy, St. Petersburg,
 Russia.
 Dr. Alexis Ostroumoff, Sebastopol, Russia.
 C. Stacy Watson, Great Yarmouth, Scotland.
 Prof. J. C. Ewart, Edinburgh, Scotland.
 Prof. W. C. McIntosh, St. Andrews, Scotland.
 Dr. John Murray, Edinburgh, Scotland.
 Dr. Fulton, Sci. Secretary Fisheries Board, Edinburgh, Scot-
 land.
 Prof. E. E. Prince, Ottawa, Canada.
 Sir J. G. Maitland, Howietoun, Scotland.
 J. J. Arnistead, Solway Fishery, Dumfries, Scotland.
 Lieut. Col. F. G. Sota, Spain.
 Dr. Rudolf Lundberg, Stockholm, Sweden.
 Dr. Filip Trybom, Stockholm, Sweden.
 Dr. A. H. Malin, Goteborg, Sweden.
 Prof. F. A. Smitt, Stockholm, Sweden.
 Dr. Axel W. Ljungman, Lilldal, Sweden.
 Dr. F. A. Forel, Morges, Switzerland.
 Dr. Carl Vogt, Geneva, Switzerland.
 W. Saville-Kent, Hobart Town, Tasmania.

In view of the vast and widespread interests dependent upon the fisheries throughout the world and of the influence exerted upon the maintenance of fishery by rational fish-culture, the assistance and hearty coöperation of men in all countries to whom these subjects appeal is greatly desired. The advantages to be derived from the presence in Chicago of manifold sources of information and comparison, both from exhibits and from representative men, should be fully utilized, and will undoubtedly lead to substantial public benefit. The committee aims to secure by further correspondence addresses upon the foregoing and related subjects for presentation at the meetings of the Congress.

M. McDONALD, *Chairman,*
 U. S. Commissioner Fish and Fisheries.
 TARLETON H. BEAN, *Secretary.*
 S. A. FORBES,
 N. K. FAIRBANK,
 DR. G. BROWN GOODE,
 A. BOOTH,
 EUGENE G. BLACKFORD,
 R. EDWARD EARLL,

Committee of the World's Congress Auxiliary on a Fisheries Congress.

WORLD'S CONGRESS HEADQUARTERS,
 Chicago, August, 1893.

LETTER OF THE CHAIRMAN OF THE GENERAL COMMITTEE.

U. S. COMMISSION OF FISH AND FISHERIES.

Arrangements have been made for an international Congress at Chicago, commencing October 16, 1893, of persons interested in fisheries and fish-culture, as announced in the preliminary circular of the general committee, a copy of which is inclosed herewith. It is the earnest desire of the committee that you will prepare an address upon one of the subjects suggested in the circular, or upon some other related topic within the scope of the occasion, and present it in person at one of the meetings of the Congress.

If you are unable to be present it is hoped that you will send to the chairman of this committee an address to be read at one of the regular meetings, advising him as early as practicable as to the title of the article, in order that a preliminary program of papers may be issued with little delay.

Very respectfully, yours,

MARSHALL McDONALD,
Chairman.

While the preparations for the Fisheries Congress were going on the commissioners of fish and game of the New England States decided to hold a conference in connection with the Commission of the United States at Chicago during the week fixed upon for the sessions of the Fisheries Congress. The United States Commissioner of Fish and Fisheries was invited to act as chairman of the conference, and, in pursuance of his duty, he appointed Mr. E. A. Brackett, of Winchester, Mass., chairman of a committee of organization. Commissioner McDonald sent out the following invitation to members of the State commissions:

U. S. COMMISSION OF FISH AND FISHERIES, *Washington, D. C.*

DEAR SIR: In compliance with the request of the commissioners of fisheries of the New England States, I have the honor to invite you to a conference of the United States and State commissioners, to be held at Chicago on the 18th of October, 1893. This date is fixed by reason of the fact that the World's Congress of the Fisheries will then be in session, and the commissioners will have the opportunity of also attending the sessions of this body and participating in the proceedings. It is desirable that topics which are to be brought up for discussion at the conference should be announced in advance, so that those desiring to participate in the discussions may have the opportunity for due consideration and preparation.

I shall be glad to have you indicate topics appropriate for discussion, sending the same to Mr. E. A. Brackett, commissioner of fisheries for Massachusetts, at Winchester, Mass., whom I have requested to act as chairman of the committee of organization of the conference, associating with him such other members of the State commissions as he may find most expedient.

Very respectfully,

MARSHALL McDONALD,
U. S. Commissioner of Fish and Fisheries.

Chairman Brackett appointed the following commissioners to act with him on the committee of organization of the conference, and invited them to meet at the office of the U. S. Fish Commission exhibit in Chicago on October 17:

E. W. Gould, Searsport, Me.; Jno. W. Titcomb, Rutland, Vt.; W. P. Andrus, Minneapolis, Minn.; Joseph D. Redding, San Francisco, Cal.; H. B. Vincent, McConnelville, Ohio; N. C. Prickett, Ravenswood, W. Va.; S. M. Bronson, Connecticut; Dr. J. T. Wilkins, Bridgetown, Va.

His letter of invitation follows:

COMMONWEALTH OF MASSACHUSETTS.

{ Department of Fisheries and Game.—Commissioners: Edward A. Brackett, Winchester; }
Edward H. Lathrop, Springfield; Isaiah C. Young, Wellfleet. }

WINCHESTER, MASS., ———, 1893.

DEAR SIR: In compliance with the request of U. S. Commissioner Marshall McDonald, I have consented to act as chairman of the committee on organization of the conference of commissioners to be held at Chicago, October 18, notice of which has, I understand, been sent to you. It will greatly assist in the organization to know who are to be at the meeting. Will you, therefore, kindly inform me whether you intend to be present?

Suggestions of topics for discussion should be sent to me as early as possible.

I have the honor to be, yours, truly,

E. A. BRACKETT.

Chairman Brackett also issued the following list of topics for consideration at the conference:

DEAR SIR: I inclose a list of the topics thus far received for consideration at the Conference of Commissioners of Fisheries and Game, to be held at Chicago October 18. Doubtless many other subjects will be suggested. It is the desire of U. S. Commissioner McDonald that the conference should be a free and friendly discussion of all matters connected with the work of the commissions.

The future of Fish-culture on the Pacific Coast	} Paper	.....	JOSEPH D. REDDING, California.
The Cod and Halibut Industries of the Pacific			
Advisability of placing Black Bass in streams with Trout		.....	WM. C. MURDOCK, California.
The Rise and Decline of the Fishing Industry of the Great Lakes		.....	H. B. VINCENT.
The Fishing Industry of Lake Erie, past and present		.....	Col. C. M. KEYES, Ohio.
Interstate Laws for the better Protection of Fish and Game		.....	T. J. GRIGGS, Iowa.
Protection, especially of the Large Game		.....	W. P. ANDRUS, Iowa.
Best Methods of Protection—by volunteer or salaried service?		.....	} JOHN W. TITCOMB, Vermont.
Statutory limit as to length of Fish—whether best form of Protection or not		.....
In stocking Public Waters with Fish artificially hatched, at what age is it most desirable to plant them?		.....	E. A. BRACKETT, Massachusetts.
The relation of the Government to the maintenance of Fisheries		.....	Dr. JOEL C. PARKER, Michigan.
What Fish are most profitable for Pond Culture, for home use, in inland States?		.....	N. C. PRICKETT, West Virginia.
Effect of Fish Pounds and Weirs on our present and prospective Food-fishes		.....	Dr. J. T. WILKINS, Virginia.

E. A. BRACKETT,

Chairman Committee of Organization.

On October 6 the general committee began the distribution of its provisional program containing titles of addresses and papers which had been received at that time. A copy of the program follows:

CONGRESS ON FISH AND FISHERIES.

In accordance with the preliminary address of this committee a Congress of persons interested in the fisheries and fish-culture will be held under the auspices of the World's Congress Auxiliary, at the Art Palace, Michigan avenue and Adams street, Chicago, beginning October 16 and continuing until the program of addresses and papers is exhausted. A convention of fish commissioners of the various States will also be held in the same place, in association with the Fisheries Congress, on October 16.

The following provisional program contains the titles of addresses and papers which have, up to this time, been furnished to the committee to be read at the sessions of the Congress.

PROVISIONAL PROGRAM.

- Interrelation of the General Government, the State, and the Individual: Dr. Joel C. Parker, Grand Rapids, Mich.
- The Assimilation of the Fishery Laws of the Great Lakes: Dr. G. A. MacCallum, Fish Commissioner, Dunnville, Ontario, Canada.
- The Decrease of Fish in American Waters and some of the Causes: Mr. A. M. Spangler, President Fish Protective Association, Philadelphia, Pa.
- The Relation of Scientific Research to Economic Problems: Dr. G. Brown Goode, Director U. S. National Museum Washington.
- Biological Research in relation to the Fisheries: Prof. J. A. Ryder, Professor of Comparative Embryology, University of Pennsylvania, Philadelphia.
- The Investigation of Rivers and Lakes with reference to the Fish Environment: Dr. B. W. Evermann, U. S. Fish Commission, Washington, D. C.
- Preliminary Account of the Plankton Investigation for the Michigan Fish Commission on Lake St. Clair: Prof. J. E. Reighard, Professor of Animal Morphology, University of Michigan, Ann Arbor.
- The Origin of the Food of Marine Animals: Prof. W. K. Brooks, Johns Hopkins University, Baltimore, Md.
- On the Food of the Menhaden: Prof. James I. Peck, Williams College, Williamstown, Mass.
- On the Pelagic Fauna in Connection with Fish Growth: Prof. W. C. McIntosh, St. Andrews, Scotland.
- Atmospheric and other Influences on the Migrations of Fishes: Mr. J. J. Armistead, Proprietor of Solway Fishery, Dumfries, Scotland.
- The Correlation of Land and Water in relation to Food Supply and Agriculture: Prof. W. O. Atwater, Professor of Chemistry, Wesleyan University, Middletown, Conn.
- Observations Concerning Fish Parasites: Prof. Edwin Linton, Washington and Jefferson College, Washington, Pa.
- The Aquarium: Prof. S. A. Forbes, Director of State Laboratory of Natural History, Champaign, Ill.
- Utilizing the Giant Kelp of the Northwest Coast: Mr. James G. Swan, Port Townsend, Wash.
- Methods of securing Herrings, Smelt, and Sardines at Port Townsend: Mr. James G. Swan, Port Townsend, Wash.
- The Sardine of Puget Sound, and the Methods of Preserving it in Oil: Mr. James G. Swan, Port Townsend, Wash.

- A Review of Fish-culture in Europe and North America:** Dr. Nicolas Borodine, Fish Commissioner, Uralsk, Russia.
On the Fishes which have been Developed at the Marine Laboratory, St. Andrews: Prof. W. C. McIntosh, St. Andrews, Scotland.
On the General Question of Fish Hatching (Marine): Prof. W. C. McIntosh, St. Andrews, Scotland.
History and Methods of Whitefish Culture: Mr. Frank N. Clark, U. S. Fish Commission, Northville, Mich.
The Culture of Sturgeon in the United States: Dr. Bashford Dean, Department of Biology, Columbia University, New York City.
Methods employed at Craig Brook in rearing Young Salmonid Fishes: Mr. Charles G. Atkins, U. S. Fish Commission, East Orland, Me.
Propagation of Black Bass in Ponds: Mr. William F. Page, U. S. Fish Commission, Neosho, Mo.
The Past, Present, and Future of Oyster-Culture in Georgia: Dr. A. Oemler, Savannah, Ga.
The Methods of Deep-water Oyster-Culture: Henry C. Rowe, New Haven, Conn.
Habits and Development of the American Lobster, and their Bearing upon its Artificial Propagation: Dr. F. H. Her-
 rick, Adelbert College, Cleveland, Ohio.
Fisheries of Japan: Mr. Sakaye Sawatari, Commissioner of Japanese Fisheries Society.
Fishing in British Guiana: Mr. J. J. Queleh, Commissioner of British Guiana.
The Fisheries of Canada: Hon. L. Z. Joncas, Quebec.
Statistics of the Fisheries of the United States: Dr. H. M. Smith, U. S. Fish Commission, Washington, D. C.
Fish Industries of the Pacific Coast: Mr. Joseph D. Redding, Fish Commissioner, San Francisco, Cal.
Fur Seals from an Economic Standpoint: Mr. J. Stanley-Brown, Washington, D. C.
The Exhibit of Pearls at the World's Columbian Exposition: Mr. George F. Kunz, Jackson Park, Chicago, Ill.
Foul Fish and Filth Fevers: Dr. J. Lawrence-Hamilton, Brighton, England.
A Plea for Fishery Folks' Technical Education: Dr. J. Lawrence-Hamilton, Brighton, England.

These papers will either be presented by the authors in person or will be read by title or abstract only, and it is expected that all of the articles will afterwards be published in full. After the reading of the addresses opportunity will be given for their formal discussion. The committee requests that persons who desire to send additional titles, or who require further information about the Congress, address the Secretary of the general committee, Dr. Tarleton H. Bean, U. S. Government Building, Jackson Park, Chicago.

Arrangements are now being completed for an international fish banquet for the members of the Congress, the State fish commissioners, and invited guests on the evening of October 17.

MARSHALL McDONALD, *Chairman.*
 TARLETON H. BRAN, *Secretary.*
 S. A. FORBES,
 A. BOOTH,
 EUGENE G. BLACKFORD,
 G. BROWN GOODE,
 N. K. FAIRBANK,
 R. EDWARD EARLL,

Committee of the World's Congress Auxiliary on a Congress on Fish and Fisheries.

WORLD'S CONGRESS HEADQUARTERS,
 Chicago, October 1, 1898.

Titles of papers continued to arrive, and the final program was not ready for distribution until the sessions of the Congress were opened. The following is a complete list of the papers presented for reading and publication:

PROGRAM OF THE CONGRESS ON FISH AND FISHERIES.

SECTION 1.—FISHERY LAWS AND REGULATIONS. (Dr. William M. Hudson, chairman.)

- Address of the Chairman of the General Committee:** Hon. Marshall McDonald, U. S. Commissioner of Fish and Fisheries, Washington, D. C.
The Assimilation of the Fishery Laws of the Great Lakes: Dr. G. A. MacCallum, Fish Commissioner, Dunnville, Ontario, Canada.
The Decrease of Fish in American Waters and Some of the Causes: Mr. A. M. Spangler, President Fish Protective Association, Philadelphia, Pa.
The Sea and Coast Fisheries: Hon. Daniel T. Church, Tiverton, R. I.
Our Ocean Fishes and the Effect of Legislation Upon the Fisheries: Mr. J. M. K. Southwick, Fish Commissioner, Newport, R. I.
The Past, Present, and Future of Trout-Culture: Mr. W. L. Gilbert, Plymouth, Mass.

SECTION 2.—SCIENCE IN RELATION TO THE FISHERIES AND FISH-CULTURE.

(Dr. George Brown Goode, Chairman.)

- The Relation of Scientific Research to Economic Problems: Dr. George Brown Goode, Director U. S. National Museum, Washington.
- Biological Research in relation to the Fisheries: Prof. John A. Ryder, Professor of Comparative Embryology, University of Pennsylvania, Philadelphia.
- On the Influence of Light on the Periodical Depth Migrations of Pelagic Animals: Dr. Jacques Loeb, University of Chicago, Chicago, Ill.
- The Investigation of Rivers and Lakes with reference to the Fish Environment: Dr. Barton W. Evermann, U. S. Fish Commission, Washington, D. C.
- Some Plankton Studies in the Great Lakes: Prof. J. E. Reighard, Professor of Animal Morphology, University of Michigan, Ann Arbor.
- Habits and Development of the American Lobster, and their Bearing upon its Artificial Propagation: Dr. F. H. Herrick, Adelbert College, Cleveland, Ohio.
- The Origin of the Food of Marine Animals: Prof. W. K. Brooks, Johns Hopkins University.
- Atmospheric and other Influences on the Migrations of Fishes: Mr. J. J. Armistead, Proprietor of Solway Fishery, Dumfries, Scotland.
- The Correlation of Land and Water in Relation to Food Supply and Agriculture: Prof. W. O. Atwater, Professor of Chemistry, Wesleyan University, Middletown, Conn.
- Observations Concerning Fish Parasites: Prof. Edwin Linton, Washington and Jefferson College, Washington, Pa.
- The Aquarium of the United States Fish Commission at the World's Columbian Exposition: Prof. S. A. Forbes, Director of State Laboratory of Natural History, Champaign, Ill.
- Description of the Fresh and Salt Water Supply and Pumping Plants used for the Aquarium: I. S. K. Reeves, U. S. N.
- Observations and Experiments on *Saprolegnia* infesting Fish: G. B. Clinton, University of Illinois.
- Report on a Parasitic Protozoan observed on Fish in the Aquarium: C. W. Stiles, PH. D., Department of Agriculture, Washington, D. C.
- On the Food of the Menhaden (Illustrations by lantern slides): Dr. James I. Peck, Williams College, Williamstown, Mass.

SECTION 3.—FISH-CULTURE. (Mr. Eugene G. Blackford, Chairman.)

- Address of the Chairman, Eugene G. Blackford, 80 Fulton Market, New York City.
- A Review of Fish-Culture in Europe and North America: Dr. Nicolas Borodine, Fish Commissioner, Uralsk, Russia.
- Some Notes about American Fish-Culture: Dr. Oscar Nordqvist, Inspector of Fisheries, Helsingfors, Finland.
- Fish-Culture in Michigan: Hoyt Post, Esq., Fish Commissioner, Detroit.
- Methods Employed at Craig Brook in Rearing Young Salmonoid Fishes: Mr. Charles G. Atkins, U. S. Fish Commission, East Orland, Me.
- History and Methods of Whitefish-Culture: Mr. F. N. Clark, U. S. Fish Commission, Northville, Mich.
- Propagation of Black Bass in Ponds: Mr. William F. Page, U. S. Fish Commission, Neosho, Mo.
- Notes on the Hatching of Sturgeon: Dr. Bashford Dean, Columbia University, New York City.
- The Past, Present, and Future of the Oyster Industry of Georgia: Dr. A. Oemler, Savannah, Ga.
- The Methods of Deep-water Oyster-Culture: Mr. Henry C. Rowe, New Haven, Conn.
- What We Know About the Lobster: Mr. Fred Mather, Cold Spring Harbor, N. Y.
- Breeding Natural Food Artificially for Young Fish Artificially Reared: Mr. A. N. Cheney, Editor Shooting and Fishing, Glens Falls, N. Y.
- Fish-Cultural Investigations at the St. Andrews Marine Laboratory (under the Fishery Board for Scotland): Prof. W. C. McIntosh, M. D., LL. D., F. R. S., Member of the Fishery Board for Scotland.
- Description of the Marine Hatchery at Dunbar, Scotland: Dr. T. Wemyss Fulton, F. R. S. E., Superintendent of Scientific Investigations, Fishery Board for Scotland.

SECTION 4.—THE COMMERCIAL FISHERIES. (Dr. Hugh M. Smith, Chairman.)

- The Maintenance and Improvement of the American Fisheries: Dr. Hugh M. Smith, U. S. Fish Commission, Washington, D. C.
- Foul Fish and Filth Fevers: Dr. J. Lawrence-Hamilton, Member Royal College of Surgeons (London); Licentiate Royal College of Physicians (Edinburgh); 30 Sussex Square, Brighton, England.
- Reforms and Improvements suggested for the Fisheries of Great Britain and Ireland: Dr. J. Lawrence-Hamilton, etc., 30 Sussex Square, Brighton, England.
- Fishing in British Guiana: Mr. J. J. Queleh, Commissioner of British Guiana.
- The Fisheries of Canada: Hon. L. Z. Joncas, Quebec.
- The Fishing Industry of Lake Erie, Past and Present: C. M. Keyes, Sandusky, Ohio.
- The Fisheries of the Virginia Coast: Dr. J. T. Wilkins, Fish Commissioner of Virginia.
- Notes on the Irish Mackerel Fisheries: Rev. W. S. Green, Office of Irish Fisheries, Dublin, Ireland.
- The Southern Spring Mackerel Fishery of the United States: Dr. H. M. Smith, U. S. Fish Commission.
- The Past and Future of the Fur Seal: Mr. J. Stanley-Brown, U. S. Geological Survey, Washington, D. C.
- Notes on the Fisheries and Fishery Industries of Puget Sound: James G. Swan, Esq., Port Townsend, Jefferson County, Washington.
- Fish Nets; Some Account of their Construction and the Application of their various Forms in the American Fisheries: Mr. C. H. Augur, New York City.
- Statistics of the Fisheries of the United States: Dr. Hugh M. Smith, U. S. Fish Commission.
- The Exhibit of Pearls at the World's Columbian Exposition: Mr. George F. Kunz, New York City.
- The Fisheries of Japan: By the Bureau of Agriculture of Japan.

The formal sessions of the World's Fisheries Congress were opened in Hall 26 of the Memorial Art Palace, Chicago, on Monday morning, October 16, 1893. The opening address was made by the chairman of the Congress, Hon. Marshall McDonald. During the temporary delay of the chairman of the first section, Mr. L. D. Huntington, president of the New York Fish Commission, acted as chairman of the section.

Dr. G. A. MacCallum's article was the first paper read. After its conclusion Dr. Goode spoke as to the value of occasions when such papers are brought together.

Mr. A. M. Spangler, president of the Fish Protective Association of Eastern Pennsylvania, then read his essay on the decrease of fish.

He was followed by Mr. Daniel T. Church, of Tiverton, Rhode Island, with a paper on the seacoast fisheries. After the reading of Mr. Church's article it was discussed, along with the essay of Mr. Spangler, by the following members of the Congress: Mr. D. T. Church, Mr. E. G. Blackford, Mr. W. H. Bowman, Dr. Jas. I. Peck, Mr. A. Booth, Mr. Hoyt Post, Mr. L. D. Huntington, Hon. Marshall McDonald, and Mr. Fred Mather.

The second session of the Congress began at 10 a. m., October 17. The general chairman, Hon. Marshall McDonald, made the opening address, after which the chairman of the meeting, Dr. G. Brown Goode, followed with an address on the "Relation of Scientific Research to Economic Problems."

The first paper on the program, by Dr. Jacques Loeb, was entitled "On the Influence of Light on the Periodical Depth Migrations of Pelagic Animals." It was discussed by Dr. Herrick, Hon. Marshall McDonald, and Dr. Goode.

Prof. B. W. Evermann read an essay on the "Investigation of Rivers and Lakes with reference to the Fish Environment."

Prof. J. E. Reighard, of the University of Michigan, gave an oral preliminary account of the Plankton Investigations for the Michigan Fish Commission on Lake St. Clair. This paper was discussed by Prof. Evermann, Mr. Fred Mather, Dr. Goode, Mr. A. Booth, and Mr. W. H. Bowman. Mr. Mather's remarks related to the straining capacity of towing nets, and Mr. Booth spoke of the effects of whitefish planting.

The last paper on the program, read by Dr. F. H. Herrick, of Adelbert College, related to the "Habits and Development of the American Lobster and their Bearing upon its Artificial Propagation." The discussion of this paper was entered into by Dr. Hudson, Mr. Church, Mr. Mather, and Mr. A. W. Harvey, Fish Commissioner of Newfoundland. Mr. Church stated that many young lobsters are deliberately killed by lobstermen, who crush them on the gunwale of the boat. Mr. Harvey spoke of the good results of planting lobsters in Newfoundland, and stated that he expects to turn out 1,000,000 young lobsters next year.

The evening session began at 8:25 in Hall 4 of the Art Palace. At this session the speakers were introduced by Mr. Eugene G. Blackford. Mr. J. Stanley-Brown, of Washington, D. C., delivered a lecture on the "Past and Future of the Fur Seal," and was followed by Dr. James I. Peck, of Williams College, Williamstown, Mass., with an address on the "Food of the Menhaden." Mr. Blackford made some remarks suggested by the lecture of Dr. Peck. Both of the evening lectures were well illustrated by means of lantern slides, the lantern and the attendant having been kindly furnished to the Congress, without expense, by the McIntosh Battery and Optical Company, of Chicago.

On Wednesday, October 18, the general chairman introduced the chairman of the meeting, Dr. Hugh M. Smith, of Washington, D. C., who delivered an address on the "Maintenance of the Fisheries of the United States."

Mr. A. A. Adams, of the American Net and Twine Company, of New York City, read a paper on "Fish Nets; some Account of their Construction, and the Application of their various Forms in the American Fisheries," by C. H. Augur.

Dr. H. M. Smith followed with a paper entitled "Statistics of the Fisheries of the United States."

A paper by Mr. James G. Swan, of Port Townsend, Wash., on the "Sardine of Puget Sound," was read by the secretary, Dr. Tarleton H. Bean.

An article on the "Spring Mackerel Fishery," by Dr. Hugh M. Smith, was then presented to the Congress. In the discussion which followed, Mr. Blackford, Mr. I. C. Young, of Brookline, Mass., and Commissioner McDonald took part.

Prof. W. O. Atwater, of Wesleyan University, of Middletown, Conn., closed the session with an address substituted for his paper on the program for the 18th, on the "Correlation of Land and Water to Food Supply and Agriculture."

The fourth session of the Congress opened at 10:30 a. m. on Thursday, October 19, Mr. E. G. Blackford presiding at the meeting.

After a brief address by the chairman, a portion of Dr. Oemler's paper on the "Past, Present, and Future of the Oyster Industry of Georgia" was read by Dr. Bean.

This was followed by the article of Mr. Henry C. Rowe, on the "Methods of Deep-water Oyster-Culture."

Dr. Hudson made some remarks on the ownership of oyster-grounds, the Connecticut system being cited as particularly favorable to the growth of the industry.

Mr. Booth spoke of the inconvenience of oyster-growing in Maryland and Virginia, because of the difficulty of acquiring titles to grounds by private parties. Mr. Swartz also engaged in the discussion, and Commissioner McDonald referred to the benefits arising from private ownership of certain grounds, into which part of the discussion Mr. W. H. Bowman and Mr. A. Booth also entered.

Mr. Fred Mather read an article entitled "What we Know about the Lobster." In the discussion of this paper Mr. Chase, Commissioner McDonald, and Mr. Huntington participated. Mr. Blackford and Mr. Mather also entered into it, and Dr. Hudson referred to the outrageous practice of killing young lobsters by fishermen.

The paper of Dr. Bashford Dean on the "Culture of Sturgeon in the United States" was read by Mr. Blackford.

The sessions of the Congress were closed on Thursday night with a fish banquet in the banquet hall of the New York State building in Jackson Park. This banquet was participated in by members of the Fisheries Congress, the Conference of State Commissioners of Fish and Game, and their invited guests. Hon. T. W. Palmer presided and delivered the opening address. The other speakers of the evening were Hon. Carter H. Harrison, mayor of Chicago; Messrs. Andrews, Bowman, and Breslin, of New York; Commissioner McDonald, Mr. J. J. Quelch, Commissioner of British Guiana, and Mr. John Foord, Secretary of the New York Commission to the World's Fair.

Following is a complete list of the members of the World's Fisheries Congress, including some members of the advisory council, whose names appear also in the preliminary address of the general committee:

LIST OF MEMBERS OF THE WORLD'S FISHERIES CONGRESS.

- | | |
|--|---|
| Mr. A. A. Adams, American Net and Twine Co.,
New York City. | Mr. R. Edward Earll, Washington, D. C. |
| Mr. W. P. Andrus, Minneapolis, Minn. | Dr. E. Ehrenbaum, Helgoland, Germany. |
| Mr. J. J. Armistead, Solway Fishery, Dumfries,
Scotland. | Prof. Barton W. Evermann, Washington, D. C. |
| Mr. Charles G. Atkins, East Orland, Me. | Mr. E. J. M. Favallini. |
| Prof. W. O. Atwater, Wesleyan University, Mid-
dletown, Conn. | Mr. Richard E. Follett, Lime Rock, Conn. |
| Mr. C. H. Angur, American Net and Twine Co.,
New York City. | Prof. S. A. Forbes, Champaign, Ill. |
| Dr. S. P. Bartlett, Quincy, Ill. | Mr. H. A. Gill, Washington, D. C. |
| Dr. Tarleton H. Bean, Washington, D. C. | Dr. G. Brown Goode, Smithsonian Institution,
Washington, D. C. |
| Mr. William Bird, Fish Commissioner, Fairmont,
Minn. | Rev. W. A. Green, Dublin Castle, Dublin, Ireland. |
| Mr. A. Booth, Chicago, Ill. | Mr. Charles S. Griffith, Port Richmond. |
| Dr. Nicolas Borodine, Uralsk, Russia. | Mr. T. J. Griggs, Fish Commissioner, Spirit Lake,
Iowa. |
| Mr. W. H. Bowman, Fish Commissioner, Roches-
ter, N. Y. | Mr. David G. Hackney, Fish Commissioner, Fort
Plain, N. Y. |
| Hon. E. G. Blackford, New York City. | Mr. Edward Hamilton, New York. |
| Mr. E. A. Brackett, Fish Commissioner, Winches-
ter, Mass. | Dr. J. Lawrence-Hamilton, No. 30 Sussex Square,
Brighton, England. |
| Prof. W. K. Brooks, Johns Hopkins University,
Baltimore, Md. | Mr. Robert Hamilton, Greenwich, N. Y. |
| Mr. J. Stanley-Brown, Washington, D. C. | Mr. L. G. Harron, Washington, D. C. |
| Mr. W. R. Callicotte, Fish Commissioner, Denver,
Colo. | Mr. A. W. Harvey, Fish Commissioner, St. Johns,
Newfoundland. |
| Mr. D. R. Cameron, Chicago, Ill. | Prof. Francis H. Herrick, Adelbert College, Cleve-
land, Ohio. |
| Mr. E. A. Chase, Tacoma, Wash. | Dr. William M. Hudson, Hartford, Conn. |
| Mr. A. N. Cheney, Glens Falls, N. Y. | Mr. L. D. Huntington, Fish Commissioner, New
Rochelle, N. Y. |
| Mr. Daniel T. Church, Tiverton, R. I. | Mr. L. D. Huntington, jr., New Rochelle, N. Y. |
| Mr. Frank N. Clark, Northville, Mich. | Dr. Ephraim Inguls. |
| Mr. H. F. Cook, Beatrice, Nebr. | Mr. Alex. Jones, Woods Holl, Mass. |
| Dr. Bashford Dean, Columbia College, New York. | Col. C. M. Keyes, Sandusky, Ohio. |
| Mr. Edward P. Doyle, No. 53 Broadway, New York. | Mr. George F. Kunz, New York City, N. Y. |
| | Mr. G. W. Langford, Fish Commissioner, Havana,
Ill. |

LIST OF MEMBERS OF THE WORLD'S FISHERIES CONGRESS—Continued.

- Maj. J. Fry Lawrence, Louisville, Ky.
 Mr. R. E. Lewis, U. S. Fish Commission, Washington, D. C.
 Prof. Edwin Linton, Washington and Jefferson College, Washington, Pa.
 Dr. Jacques Loeb, University of Chicago, Chicago, Ill.
 Dr. G. A. MacCallum, Fish and Game Commissioner, Dunnville, Ontario.
 Hon. Marshall McDonald, U. S. Commissioner of Fish and Fisheries, Washington, D. C.
 Mr. H. D. McGuire, Portland, Oregon.
 Prof. W. C. McIntosh, St. Andrews, Scotland.
 Mr. Fred Mather, Cold Spring Harbor, N. Y.
 Mr. L. M. D. Minerbi, Rome, Italy.
 Dr. A. Oemler, Savannah, Ga.
 Mr. William F. Page, U. S. Fish Commission, Neosho, Mo.
 Dr. J. C. Parker, Grand Rapids, Mich.
 Dr. James I. Peck, Williams College, Williamstown, Mass.
 Mr. Hoyt Post, Fish Commissioner, Detroit, Mich.
 Mr. Anton Pregler, Irving Park, Cook County, Ill.
 Mr. N. C. Prickett, Fish Commissioner, Ravenswood, W. Va.
 Mr. J. J. Quelch, Commissioner of British Guiana.
 Prof. J. E. Reighard, Ann Harbor, Mich.
 Mr. W. de C. Ravenel, U. S. Fish Commission, Washington, D. C.
 Mr. Henry C. Rowe, New Haven, Conn.
 Prof. John A. Ryder, University of Pennsylvania, Philadelphia, Pa.
 Mr. Frank R. Sammis, Stratford, Conn.
 Mr. Sayake Sawatari, Commissioner of Japanese Fisheries Society.
 Mr. J. M. Schaedler, Aspen, Colo.
 Dr. Hugh M. Smith, U. S. Fish Commission, Washington, D. C.
 James G. Swan, esq., Port Townsend, Wash.
 Mr. Christian Swartz, Shellfish Commissioner, South Norwalk, Conn.
 Mr. W. S. Timberlake, Fish Commissioner, St. Paul, Minn.
 Mr. John W. Titcomb, Fish Commissioner, Rutland, Vt.
 Mr. Chas. H. Townsend, U. S. Fish Commission, Washington, D. C.
 Mr. H. B. Vincent, Fish Commissioner, McConnellsville, Ohio.
 Mr. Samuel Wilder, Rochester, N. Y.
 Dr. John T. Wilkins, jr., Fish Commissioner, Bridgetown, Va.
 Mr. W. C. Williams, New York City.
 Mr. I. C. Young, Brookline, Mass.

During the sessions of the Congress the State fish commissioners entered into preliminary arrangements looking to the permanence of their organization and the appointment of annual meetings. It is believed, also, that the proceedings of the Fisheries Congress will develop a permanent organization of persons interested in the fisheries and fish-culture, which will take the form of a national society devoted to the subjects whose discussion was so favorably inaugurated under the auspices of the World's Congress Auxiliary. The results accomplished would have been comparatively insignificant without the hearty coöperation of the members forming the general committee and the local committees of organization. The series of papers brought together for the Congress is one of the most valuable collections which has ever been presented, and their publication will undoubtedly accomplish beneficent results for the fisheries and the fish-culture of the world.

Very respectfully,

TARLETON H. BEAN,
Secretary.