holtz was absent in Europe, and Dr. A. Hrdlička engaged in field-work.

A pleasant and commendable feature of the congress was the fact that all the time was not taken up by the reading of papers and the transaction of routine business, the evenings, when not devoted to some social courtesy extended to the members by individuals or institutions, being left free to be spent in that personal intercourse and discussion of topics of a common interest which so often do even more for science than the formal exercises of a great meeting. Men of science, no less than other human beings, are frequently at their best during the after-dinner hour.

ALEXANDER F. CHAMBERLAIN.
CLARK UNIVERSITY,

FIFTH INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY.

THE Fifth International Congress of Applied Chemistry will begin its sessions in Berlin on May 31, 1903.

The permanent Committee on Organization holding over from the meeting of the Fourth Congress in Paris, has designated Professor Clemens Winkler as President of Honor and Professor Otto N. Witt as President of the German Committee.

At the request of this committee and in accordance with the resolution passed by the Council of the American Chemical Society, the President of the Society has appointed the following American Committee on Organization:

H. W. Wiley, Chairman, Chief of Bureau of Chemistry, Department of Agriculture, Washington, D. C.

Section I.—Analytical Chemistry, Apparatus and Instruments: Dr. W. F. Hillebrand, Chemist, U. S. Geological Survey, Washington, D. C.; Otto P. Amend, Dealer in Chemical Apparatus and Instruments, 205 Third Avenue, New York, N. Y.; Charles Baskerville, Ph.D., F.C.S., Smith Professor of General Chemistry and Director of the Laboratory, University of North Carolina, Chapel Hill, N. C.; E. E. Ewell, Assistant Chief of Bureau of Chemistry, Department of Agriculture, Washington, D. C.; William A. Noyes, Professor of Chemistry, Rose Polytechnic Institute, Terre Haute, Ind.

Section II.—Chemical Industries of Inorganic Products: Dr. Edward Hart, Professor of Chemistry, Lafayette College, Easton, Pa.; J. D. Pennock, Chief Chemist, Solvay Process Co. and Semet-Solvay Co., Syracuse, N. Y.; Geo. C. Stone, Chief Engineer, New Jersey Zinc Co., 11 Broadway, New York, N. Y.

Section III.—Metallurgy, Mining and Explosives: Charles E. Munroe, Ph.D., Professor of Chemistry, The Columbian University, Washington, D. C.; A. E. Knorr, Chief Chemist, Baltimore Copper and Smelting and Rolling Co., Canton, Baltimore, Md.; Francis C. Phillips, Professor of Chemistry, Western University, Allegheny, Pa.; W. B. Rising, Professor of Chemistry, University of California, Berkeley, Cal.

Section IV.—Chemical Industries of Organic Products, (*a*) Organic Preparations including coal-tar products, (*b*) Dye Stuffs and their uses: William McMurtrie, Consulting Chemist, Royal Baking Powder Co., New York, N. Y.; J. Merritt Matthews, Ph.D., Professor in Charge of Chemical Dyeing Dept., Philadelphia Textile School, Philadelphia, Pa.; Clifford Richardson, Director of the New York Testing Laboratory, Long Island City, N. Y.; Samuel P. Sadtler, Ph.D., LL.D., Consulting Chemist and Honorary Professor of Chemistry, Franklin Inst. of Philadelphia, 10th and Chestnut Sts., Philadelphia, Pa.

Section V.—Sugar Industry: Dr. F. G. Wiechmann, Consulting Chemist, American Sugar Refining Co., Box 79, Station W, Brooklyn, N. Y.; Arno Behr, Ph.D., Chemist, Pasadena, Cal.; David L. Davoll, Jr., Chief Chemist, Peninsular Sugar Refining Co., Caro, Mich.; W. D. Horne, Ph.D., Consulting Chemist, The National Sugar Refining Co. of New Jersey, Yonkers, N. Y.; G. L. Spencer, Chief of Sugar Laboratory, Bureau of Chemistry, Dept. of Agriculture, Washington, D. C.

Section VI.—Fermentation and Starch Manufacture: Max Henius, Ph.D., Director, American Brewing Academy and the Scientific Station for Brewing of Chicago, Chicago, Ill.; Charles E. Pellew, E.M., Adjunct Professor of Chemistry, Columbia University, New York, N. Y.; Alfred Springer, Ph.D., Chemist, 312 E. 2d St., Cincinnati, O.

Section VII.—Agricultural Chemistry: B. W. Kilgore, Director, North Carolina Agricultural

Experiment Station and State Chemist, Raleigh, N. C.; Henry Adam Weber, Ph.D., Professor of Agricultural Chemistry, Ohio State University, Columbus, O.; Chas. D. Woods, Professor of Agriculture, University of Maine, and Director of Maine Agricultural Experiment Station, Orono, Maine; B. B. Ross, Professor of Chemistry, Alabama Polytechnic Institute and State Chemist of Alabama, Auburn, Ala.

Section VIII.—Hygiene, Chemical and Pharmaceutical Chemistry; Foods: M. E. Jaffa, Assistant Professor of Chemistry, University of California, Berkeley, Cal.; W. O. Atwater, Professor of Chemistry, Wesleyan University, Middletown, Conn., Chief of Nutrition Investigation, Office of Experiment Stations, U. S. Department of Agriculture; E. A. de Schweinitz, Chief Biochemic Division, Department of Agriculture, Dean and Professor of Chemistry, Columbian University Medical School, Washington, D. C.; Walter S. Haines, Professor of Chemistry, Pharmacy and Toxicology, Rush Medical College, Chicago, Ill.; Edward Kremers, Professor of Pharmaceutical Chemistry, Director of School of Pharmacy, University of Wisconsin, Madison, Wis.; John Marshall, Professor of Chemistry and Toxicology, University of Pennsylvania, Philadelphia, Pa.; John Uri Lloyd, Ph.D., LL.D., Professor of Chemistry, Eclectic Medical Institution, Cincinnati, O.; W. P. Mason, Professor of Chemistry, Rensselaer Polytechnic Institute, Troy, N. Y.

Section IX.—Photochemistry: Dr. L. H. Friedburg, Late Professor of Chemistry and Toxicology at the Flower Hospital Medical College, New York; Address, 529 West 147th St., New York, N. Y.; Dr. Peter T. Austen, F.C.S., Chemical Expert, 80 Broad St., New York, N. Y.; Leo Baekeland, D.Sc., Research Chemist, 'Snug Rock,' N. Broadway (Harmony Park), Yonkers, N. Y.

Section X.—Electrochemistry and Physical Chemistry: Charles A. Doremus, M.D., Ph.D., Assistant Professor of Chemistry, College of the City of New York, N. Y.; W. D. Bancroft, Assistant Professor of Physical Chemistry, Cornell University, Ithaca, N. Y.; Edgar F. Smith, Professor of Chemistry, University of Pennsylvania, Philadelphia, Pa.; C. F. Chandler, Professor of Chemistry, Columbia University, New York, N. Y.; A. A. Noyes, Professor of Theoretical and Organic Chemistry, Massachusetts Institute of Technology, Boston, Mass.

Section XI.—Legal and Agricultural Problems in Connection with the Chemical Industries: Dr. J. W. Mallet, Professor of Chemistry, University of Virginia, Charlottesville, Va.; Charles B. Dudley, Chief Chemist, Pennsylvania R. R. Co., Altoona, Pa.; Albert B. Prescott, Director of Chemical Laboratory, University of Michigan, Ann Arbor, Mich.; S. P. Sharples, Analytical and Consulting Chemist, 13 Broad Street, Boston, Mass.; A. H. Todd, Manufacturing Chemist and Distiller of Essential Oils, Kalamazoo, Mich.

A few other gentlemen have been appointed on the committee, but their acceptances have not yet been received. It is hoped that American chemists will become members of this Fifth Congress in large numbers, even if they are not able to be present in person, and that as many as possible will attend. Both those who can attend and those who are not able to go are urged to send papers.

The work of the Congress has been organized in the sections given above. The members of the committee in each section should endeavor particularly to promote the interest of that branch of the science which specially belongs to that section.

The fee for membership is 20 Marks or $4.76. To avoid the trouble of sending separate postal orders for this sum the chairman of the committee, Dr. Wiley, will undertake to transmit to Berlin the membership fees of American chemists who wish to avail themselves of this opportunity. Those desiring, therefore, to become members may send their personal check for $4.76 and nine cents to cover postage, postal orders, etc., in all $4.85, to Dr. H. W. Wiley, Chief of the Bureau of Chemistry, Department of Agriculture, Washington, D. C., who will give them a receipt for the same while waiting for an official receipt from the treasurer at Berlin.

If reductions in steamship rates can be obtained a notice to the effect will be published in Science and in the *Journal of the American Chemical Society*. Members attending the Congress should leave the United States not later than the 15th of May by slow steamer, nor the 20th of May by fast steamer.

The official announcements and other circular matter connected with the Congress will be distributed through the American committee as soon as the documents are received from Berlin. Any members of the society to whom these circulars may not be sent can secure them by writing to the chairman of the American committee.

Chemists not members of the American Chemical Society are also cordially invited to participate in the Congress both as members and as authors of papers, and the same courtesies will be extended to them, if so desired, as are offered above.

H. W. WILEY,

Member of Permanent Committee on Organization and Chairman of American Committee.

SCIENTIFIC BOOKS.

RECENT PAPERS ON THE EMBRYOLOGY, STRUCTURE AND HABITS OF LIVING BRACHIOPODA.

1. *Observations on Living Brachiopoda.* By EDWARD S. MORSE. Memoirs Boston Soc. Nat. Hist., Vol. 5, No. 8, 1902. 4to. Pp. 313–386; pls. 39–61.
2. *The Embryology of a Brachiopod, Terebratulina septentrionalis Couthouy.* By EDWIN G. CONKLIN. Proc. Amer. Phil. Soc., Vol. 41, No. 168, 1902. 8vo. Pp. 41–76; pls. 1–10.
3. *On the Development of Lingula anatina.* By NAOHIDÉ YATSU. Jour. College of Science, Imp. Univ. Tōkyō, Japan, Vol. 17. Art. 4, 1902. 8vo. Pp. 1–112; pls. 1–8.
4. *Notes on the Histology of Lingula anatina Brugière.* By NAOHIDÉ YATSU. *Ibid.*, Vol. 17, Art. 5, 1902. 8vo. Pp. 1–29; pls. 1, 2.
5. *On the Habits of the Japanese Lingula.* By NAOHIDÉ YATSU. Annotationes Zoologicæ Japonensis, Vol. 4, Pt. 2, 1902. 8vo. Pp. 61–67.

The publication of studies on living Brachiopoda seems to have become almost epidemic during the present year. Sporadic papers have appeared during the past ten years, but no marked infection has occurred until now. The results are most satisfactory, for the contributions here noticed are of a high degree of excellence and constitute a decided advance in our knowledge of the habits, anatomy and embryology of this interesting class, whose culmination was attained far back in the Paleozoic era.

Professor Morse possesses the unique distinction of having first studied the early stages and embryology of a brachiopod. His observations on the embryology of *Terebratulina* and the systematic position of the Brachiopoda were published thirty years ago. The importance of the subject led him to visit Japan, where the adjacent seas offer the greatest inducement to the student of the recent species of this class. The allurements of Japanese art have prevented the publication of the studies then made until the present time. It is quite remarkable that so few of his observations have been anticipated during the intervening years, though the publications of Joubin and Blochmann have indeed covered many of the details relating to *Lingula* and *Discinisca*.

Morse's observations refer principally to the genera *Lingula, Glottidia, Discinisca, Hemithyris, Dallina, Terebratalia* and *Terebratulina.* The points of especial interest comprise the discussion of the otocysts, pharyngeal glands, the accessory hearts of Hancock, the strand-like spermaries, the pallial circulation, the life attitudes of different forms, and particularly the varied and graceful movements of the brachia. The strand-like spermaries and the pharyngeal glands are characters heretofore undescribed, and further details are given regarding the external glands first described by the author. The presence of otocysts in *Lingula* and *Glottidea* are definitely shown although Blochmann has doubted their existence in these genera. The organs described by Hancock as the 'heart' and the 'accessory hearts' have been frequently investigated by various observers, but no final conclusion has been reached. The author shows that they cannot well belong to the circulatory system, but must be regarded as in some way connected with the genitalia, though their precise functions have not been