there is no engineering difficulty in constructing and operating lines at commercial rates to give satisfactory speech between any one and any other part of Europe; and he illustrated this statement by pointing out that between Brussels and Athens, or Paris and Constantinople, the distance is about the same as between New York and Omaha, between which calls can be made at any time, and that the direct distance overland from London to Delhi is about the same as from Key West in Florida and thence to San Francisco and Los Angeles, over which distance calls can be made regularly.

Results of this kind, however, require the use of elaborate technical devices, such as loading coils and repeaters. Formerly a long-distance telephone line consisted merely of a pair of copper wires, which with comparative ease could be kept in good order by independent maintenance units situated along its length. But now that simple structure has vanished, the plant is more complicated, the various parts are interdependent, and it is no longer possible to consider maintenance of each part solely as a sectional matter, since what is done at one place may cause serious effects at another.

Present knowledge can secure great increase in the distances spoken over, in the number of channels of communication afforded by one pair of wires, and in the cheapness, security and speed of the service, but a price must be paid for these advantages in the shape of definite and unified planning throughout the area to be covered, with unity of maintenance and of operation. In Europe, however, there are about forty self-contained local telephone operating organizations, which, though for through service they must function as a whole, are without coordination, standard practice or common technique of construction, maintenance and operation; and the through service is meager in quantity, slow and inefficient.

The through business must be handled as a complete unit, if it is to be efficiently done, and to Mr. Gill the correct course appeared obvious—to depute a body to do for all the European nations what no one nation can do for itself. Such a body, he suggested, might consist of a single company working under licenses from the various governments, or of a company or commission in which they would be the sole stockholders, which would operate all the through business both within and between the various countries of Europe. As another alternative, frankly of a temporizing nature, be suggested that all the telephone authorities should form an association and hold an early conference to study the problem in detail.

THE INTERNATIONAL COMMITTEE ON MARINE FISHERIES INVESTIGATION

THE International Committee on Marine Fisheries Investigations held its fourth meeting in Washington recently, the members present being William A. Found and Dr. A. G. Huntsman, representing Canada, and Drs. H. F. Moore, R. E. Coker and H. B. Bigelow, representing the United States. Dr. J. Playfair McMurrich, of the Canadian delegation, and Dr. James Davies, the Newfoundland delegate, were unable to attend.

The *Fisheries Service Bulletin* states that the permanent organization of the committee was completed by the election of Dr. Moore as permanent chairman, Dr. Huntsman having been elected permanent secretary at the meeting in Montreal in May. It was announced that the French government, by reason of its investigations incident to the fishery on the Grand Banks from the island of St. Pierre Miquelon, was interested in the work of the committee and would apply for representation.

The records of current drift-bottles released by Canada and the United States on the coast north and east of Sandy Hook were discussed, and the preparation of a report assigned to a committee consisting of Messrs. Huntsman and Bigelow.

Plans were made for the initiation during the coming spring of experiments in tagging cod, haddock and other commercial species of importance in the fisheries of Canada and New England, and tentative arrangements were made for the conduct of other investigations of these fish. The committee adjourned to meet in Toronto in May.

COLLOID CHEMISTRY AT THE UNIVERSITY OF WISCONSIN

THE department of chemistry of the University of Wisconsin desires to call attention to the program for colloid chemistry which will be conducted by Professor The Svedberg

during the coming semester (commencing February 1, 1923) and summer session (commencing June 25, 1923).

Professor The Svedberg, of the University of Upsala, will be in residence at the university from February 1 to August 5. He will give two lectures a week on the general theory of colloids and will direct the experimental researches of a number of graduate students during the second semester. In the summer session the course of lectures given during the second semester will be repeated. Every necessary facility will be provided for the successful prosecution of researches. Those desiring to work under Professor Svedberg's personal direction, either during the second semester or during the summer session, should communicate promptly with Professor J. H. Mathews, chairman of the department, since only a limited number can be accommodated. The opportunity of hearing Professor Svedberg's lectures and doing work under his direction during the summer session will appeal to a great many professors and instructors at other educational institutions. A considerable number have already signified their intention of embracing this opportunity.

Professor Svedberg will also conduct a seminary in colloid chemistry which will meet weekly during the second semester. The first half will be devoted to general theory and the second to biological applications of colloid chemistry. In the latter half of the work he will be assisted by Professor Elmer Sevringhaus, of the department of physiological chemistry. Admission to the seminary will be open to chemistry students who have had a course in physical chemistry and who possess at least an elementary knowledge of the theory of colloids, and to advanced workers in the biological sciences.

From June 12 to 15 inclusive a national symposium on colloid chemistry will be held at Madison to which all scientists interested in colloid chemistry are invited. A program of exceptionally interesting papers is now being formulated, and definite assurance of the attendance of nearly all of the most prominent American workers in the colloid field has already been given. About twenty papers will be presented by the authors in person and there will be ample time for thorough discussions. These discussions will be led by Professor Svedberg. More detailed information concerning the program of papers to be presented will appear later in these columns.

DISTINGUISHED SERVICE AWARDS TO CHEMISTS

THE men listed below, formerly connected with or assigned to the Chemical Warfare Service, as we learn from the *Journal of Industrial Chemistry,* have been awarded distinguished service medals for exceptionally meritorious and distinguished service in the following particulars:

Raymond F. Bacon, colonel, C. W. S., chief of Technical Division, A. E. F. Untiring energy, marked scientific attainment and comprehensive technical knowledge in the organization and operation of laboratory units and proving-ground tests.

Karl Connell, major, Medical Corps. Exposed himself unhesitatingly to highest concentrations of deadly gases while working with experimental models and masks. Invented, tested out and perfected a new type of gas mask superior to any then in existence.

Harry L. Gilchrist, lieutenant colonel, chief of the Medical Section, C. W. S., A. E. F. Not only performed services of the utmost value, both to the Medical Department and the Chemical Warfare Service, but developed a degassing unit for treating men exposed to mustard gas which proved so successful that it was adopted for the entire American Expeditionary Forces.

Byron C. Goss, lieutenant colonel, C. W. S., chemical adviser, office of chief, C. W. S., later as chief gas officer of First Corps, and finally, of Second Army. Exceptional ability and wide knowledge of gases; connected with practically every battle in which American troops were engaged.

Joel H. Hildebrand, lieutenant colonel, C. W. S., commandant, C. W. S., Experimental Field, A. E. F. Profound knowledge of chemistry, coupled with rapid grasp of military problems, enabled him to render services of value in determining the best means of using gas and gas materials in the field.

Edward N. Johnston, colonel, Corps of Engineers, assistant to chief, C. W. S., in France from June to December, 1918. Ability of high order in supervision of operations of all gas troops. Later also, to June, 1919, as acting chief of C. W. S. abroad, showed keen business ability and sound judgment in closing the chemical warfare