the International Association of Limnology. J. C. Wright, limnologist at Montana State College, was granted leave for a year prior to the congress to serve as executive secretary, in Madison. The executive committee consisted of A. D. Hasler (chairman), D. G. Frey, K. D. Carlander, G. H. Lauff (treasurer), J. C. Wright (executive secretary), T. T. Macan (secretary ex officio), W. E. Ricker, and the late D. S. Rawson.

The committee acknowledges the assistance of many students and employees of the University of Wisconsin and of ASLO members who organized and conducted the excursions.

The United Nations was asked by the International Association of Limnology to set aside specified lakes, rivers, and ponds throughout the world for preservation and scientific study.

G. E. Hutchinson (Yale University) was elected president, to serve from 1962 to 1965; he is the first American to hold this post. It was resolved that the next congress will be held in Poland in August 1965.

ARTHUR D. HASLER
Hydrobiological Laboratory,
University of Wisconsin, Madison

The Teaching of Science

The problems involved in the teaching of science are both international in scope and interdisciplinary in character. There is at present no international body whose primary function it is to discuss educational problems on such a broad and comprehensive basis. Recognizing the need for such a forum, the International Council of Scientific Unions (ICSU) convened representatives from its various scientific unions to consider the advisability of setting up an interunion commission on the teaching of science. This meeting was held in Paris early in May 1962. The following scientific unions were represented: the International Union of Biology, represented by P. Chouard (France); the International Union of Pure and Applied Chemistry, by E. L. Piret (U.S.); the International Union of Geography, by P. Pellissier (France); the International Union of Geology, by T. N. George (Great Britain); the International Union of the History and Philosophy of Science, by R. Taton (France); the International Union of Mathematics, by M. H. Stone (U.S.); and the International Union of Pure and Applied Physics, by S. C. Brown (U.S.).

The plan of constituting an interunion commission on the teaching of science was heartily endorsed, and M. H. Stone, of the University of Chicago, was elected president of the commission. P. Fleury, of the Institut d'Optique, Paris, agreed to fill the important post of secretary. The Interunion Commission on the Teaching of Science then focused its attention on a number of specific areas for action and planning.

The commission decided to enlist the aid of national correspondents in as many countries as possible. These correspondents would be asked to furnish information on the teaching of science in their respective countries and, in particular, to keep the commission informed on new experiments in education which would be of interest in the teaching of science. In return, the commission would undertake to keep the national correspondents informed as to the material the commission received and would ask the correspondents to be responsible for diffusing this information within their own countries insofar as this would be useful and practical.

The hope was expressed that the commission would be able to set up close liaison with official international organizations which are already active in the field of science education, or which plan to be active in the future. To explore this idea the commission met with Albert Baez, chief of the Division of Science Teaching of the Department of Exact and Natural Sciences, UNESCO, and with Ganeff and Trautmann of the Organization for Economic Co-operation and Development and found them all enthusiastic about such a liaison. The Interunion Commission hopes to formalize a liaison with each of these organizations and to establish similar arrangements with other international bodies.

Members of the commission felt that it was the particular responsibility of an interdisciplinary body to call attention to the role of science in general education and, in particular, to the role of the history and philosophy of science underlying all of the various individual disciplines.

In the interest of interdisciplinary science teaching it seemed important to stimulate the writing of books in borderline fields where essentially no interdisciplinary material now exists. Interdisciplinary sequences—such as

physics, chemistry, biology; mathematics, physics, astronomy; social science, information theory, psychology; and physics, chemistry, geology—were some of the subject groupings suggested. Such books should give the science teacher sufficient background to develop particular course sequences within his own educational system. They should be written by recognized experts in the various fields, not as a collection of individual points of view but as a unit.

The assembled group expressed deep concern with the role of the teacher and a desire to strengthen this arm of the educational process in every way possible. The International Conference on Physics Education (*1*), held in Paris in 1960, had adopted a resolution in this regard which the ICSU Commission felt could justifiably be generalized to relate to all science teaching. Its modified version of the resolution read as follows.

We stress that efficient instruction in science requires specialized teachers who can keep abreast of developments in a rapidly growing subject. We are alarmed at the present shortage of such teachers, particularly in view of the growing demand for science education. The shortage is likely to become more acute in the years ahead. In our opinion, steps should be taken to improve both the efficiency and the attractiveness of science teaching as a profession. Insofar as the realization of these aims requires action by governments and universities, we recommend that these bodies should consider the following general conclusions:

a) In schools of secondary and higher levels, science should be taught by appropriately trained scientists, that is, by men and women who have received a professional training in the particular field of science in which they teach. Teachers must be encouraged to keep their professional experience up-to-date. The experimental nature of most sciences places an added burden on the teacher, and this must be recognized and adequately compensated by a reduction in his teaching hours and in other suitable ways.

b) To make teaching careers more attractive, improvements of salary and status are necessary in some cases, but most important are better conditions of work. For example, technical assistance and liberal provision of apparatus are vital, and facilities should be provided for all students at all levels to carry out experiments. Secondary-school teachers should have conditions in which they can feel that they form an integral part of the development of scientific knowledge.

c) Universities and comparable institutions should accept their responsibility to establish close relations with secondary-school teachers, to assist in solving the problems of instruction in schools, and to provide refresher courses. These courses would require extended periods of study leave for teachers.

The commission proposed to the International Council of Scientific Unions that an international conference on the teaching of sciences be held, possibly in 1964 or 1965, to bring together the various conclusions of the individual scientific unions on the following subjects: The place of sciences in general education; the place of mathematics in the teaching of science; the role of history in science teaching; new methods in teaching science; and recruitment and work conditions for professors and their pupils.

The Interunion Commission on the Teaching of Science wishes to publicize its existence on as wide a front as possible, so that the problems it works on will be truly representative of those faced by the international educational community and the methods of solution it suggests will have wide application.

SANBORN C. BROWN
Department of Physics, Massachusetts Institute of Technology, Cambridge

Reference

1. S. C. Brown and N. Clarke, *International Education in Physics* (Wiley, New York, 1960).

Forthcoming Events

December

4–5. Microbiological Problems in **Petroleum** Production, symp., Long Beach, Calif. (C. C. Wright, Oilwell Research, Inc., 1539 W. 16 St., Long Beach 13)

4–6. **Computers**, joint fall conf., Philadelphia, Pa. (J. W. Leas, Radio Corp. of America, Camden, N.J.)

4–7. American **Documentation** Inst., Hollywood-by-the-Sea, Fla. (J. B. Kaiser, 1718 N St., NW, Washington 6)

4–8. Controlled Field Trials of **Communicable Diseases**, conf., Geneva, Switzerland. (World Health Organization, Palais des Nations, Geneva)

4–13. Techniques of Surveys on **Epidemiology** of **Mental Disorders**, Manila, Philippines. (World Health Organization, Regional Office for the Western Pacific, P.O. Box 2932, Manila)

5–11. American Acad. of **Optometry**, Miami, Fla. (C. C. Koch, 1506-08 Foshay Tower, Minneapolis 2, Minn.)

6–8. **Mathematics**, annual conf., Santa Monica, Calif. (H. Couzins, Chaffey High School, Ontario, Calif.)

7–8. American **Rheumatism** Assoc., Richmond, Va. (J. A. Coss, 20 E. 76 St., New York 21)

7–8. Oklahoma Acad. of **Science**, Tulsa. (A. D. Buck, Northern Oklahoma Junior College, Tonkawa)

7–9. American **Psychoanalytic** Assoc., New York, N.Y. (H. Kohut, 664 N. Michigan Ave., Chicago 11, Ill.)

7–11. **Visual Communications**, intern. congr., Philadelphia, Pa. (Visual Com-