

INTERNATIONAL

New ICSU Commission

Last September, during its meeting in London, the Executive Committee of the International Council of Scientific Unions approved a resolution calling for the establishment by ICSU of a new interunion Commission for the Teaching of Science. Subject to the approval of the individual unions, it is contemplated that the participating organizations will include the International Union of Pure and Applied Physics, as well as the international unions representing biology, chemistry, history and philosophy of science, mathematics, mechanics, and certain other disciplines.

The desirability of creating an ICSU science teaching commission in which the various unions might participate was discussed last spring at the first meeting of IUPAP's International Commission on Physics Education, and it was agreed at that time that P. Fleury, secretary general of IUPAP, should approach ICSU to discuss the possibility of establishing such a joint commission.

The new Commission will be responsible for undertaking the study of all questions relating to teaching, especially at the university level, which concern the interests of the various member unions. The initial meeting of the Commission is to take place this year, and ICSU has delegated the responsibility for its planning and organization to Prof. Fleury.

IUPAP Commissions Report

Much of the activity of the International Union of Pure and Applied Physics results from the work of the numerous special commissions within the Union. Each commission has an international composition, and each periodically submits a report of its work, including recommendations for action, to the general assembly of IUPAP. The following are excerpts from several such reports made subsequent to meetings of several of the commissions which were held between April and September 1961.

Commission on Physics Education

Consideration was given to arrangements for an international conference, tentatively scheduled to be held next year, which would carry on the work of the 1960 Paris Conference on Physics Education but would be limited to a more restricted topic. It was agreed that such a meeting should be held elsewhere than in Europe or the United States, and that the theme of the conference should be "Physics in General Education". Its purpose would be the detailed investigation and consideration of introductory courses in physics, as distinct from general science, with emphasis given to such matters as the place of science in modern general education, the physics syllabus needed to illustrate the place of physics in modern culture, experiments in teaching physics,

the training and qualification of teachers, and the place of physics among other sciences.

In its association with Unesco, the Commission suggested that that organization might usefully address itself to several matters which are relevant to physics education, including a study of hazards in physics teaching laboratories and of necessary precautions against them, the production of lists of modern equipment suitable for teaching physics in underdeveloped countries, a survey of examination methods and systems, the establishment of an information center for scientific education, and wider dissemination of the *Proceedings* of the 1960 Paris conference.

Commission on High-Energy Physics

Most of the discussion at the meeting of this Commission centered about the various conferences on high-energy physics that have been or will be sponsored by IUPAP, including the 1961 International Accelerator Conference at Brookhaven and the 1962 International Conference on High-Energy Physics to be held at CERN, as well as the 1963 International Accelerator Conference, for which the USSR has been asked to assume responsibility.

The Commission also adopted the following resolution on the question of the establishment of an international high-energy accelerator laboratory: "Taking note of the fact that the meeting to discuss an international accelerator laboratory, which was scheduled for 5 September 1961 in New York, could not accomplish its objectives because of the absence of the delegates from the USSR, the IUPAP High-Energy Commission expresses its hope that another meeting can be scheduled in the near future and offers its good offices to help arrange such a meeting. The Commission hopes that further discussion will result in the establishment of a study group to consider the feasibility and desirability of building a truly international accelerator laboratory".

Publications Commission

The Commission on Publications has urged the various national committees of the individual member states of IUPAP to prepare at least annually a list of the serial and nonperiodical publications printed in each country. Several national committees, chiefly of the small nations, have estimated that such a task is possible and that they would be willing to assume responsibility for it. Among the larger nations, only the United States has accepted the proposal, the National Science Foundation being responsible for the preparation of the listings.

The International Standardizing Organization is continuing its work on the standardizing of bibliographic citations and of abbreviations of the titles of scientific periodicals. The problem of uniformity in the trans-

literation of Cyrillic characters into Latin characters has still not been resolved, primarily because of the existence of three separate systems of transliteration employed respectively by the Royal Society of London, the Library of Congress in Washington, D. C., and the ISO itself. Measures taken by the Commission on Publications to obtain accord among adherents of these systems have not yet proved successful.

Commission on Symbols, Units, and Nomenclature

The final proof sheets of the SUN Commission's document, *Symbols, Units, and Nomenclature*, intended as a systematic presentation of all of the Commission's recommendations to date, were discussed and approved. New recommendations were proposed in the fields of solid-state physics, elementary quantum mechanics, and atomic, molecular, and nuclear spectroscopy, and these have been submitted to all of the national committees of IUPAP for comments and consideration. The recommendations will be drafted in their final form at the January 1963 meeting of the SUN Commission.

Meanwhile, a collaborative effort by specialists in various fields of physics is planned for the purpose of preparing short reports on symbols and nomenclature that might be published as a provisional and temporary measure to promote a more uniform terminology. In collaboration with the International Standardizing Organization, the Commission has prepared a vocabulary of terms and definitions of quantities, units, and symbols in the field of nuclear energy, as well as a series of definitions of basic quantities and units having to do with ionizing radiation.

Seminar at Uppsala

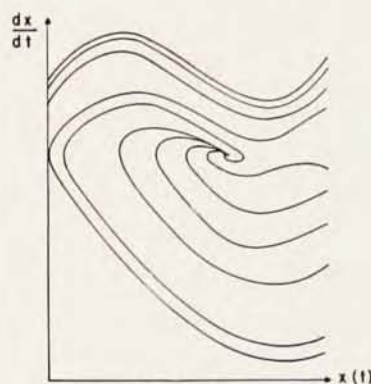
An international seminar for research and education in physics was inaugurated on September 1 by the University of Uppsala in Sweden. It is open to non-European students and scientists and is intended to provide opportunities for individual participation in research under experienced scientists. Intended primarily for those from developing countries, the seminar will deal with methods of organizing research projects, laboratories, and teaching programs, and will review the organizational procedures followed in Sweden and other countries for the planning of schools, technical institutions, and industrial laboratories. The official language is English.

The seminar is to be given annually, and applications are now being considered for the second such program, which will start September 1, 1962, and will continue through June 1963. Application forms can be obtained by writing to the International Seminar for Research and Education in Physics, Institute of Physics, University of Uppsala, Uppsala, Sweden, and should be returned by April 15. Successful applicants will receive fellowships covering all expenses, including travel. The seminar is cosponsored by the International Atomic Energy Agency, UNESCO, and the Central Committee for Swedish Technical Assistance.

NON-LINEAR DIFFERENTIAL EQUATIONS

The non-linear differential equation shown above the phase-plane plot governs the behavior of one form of the well-known electronic circuit used for the reception of weak communication signals. The circuit, known as the phase-lock loop, has a mechanical analog consisting of a mass subjected simultaneously to non-linear restoring and resistive forces.

$$\frac{d^2 x}{dt^2} + (\alpha + \kappa \cos x) \frac{dx}{dt} + \gamma \sin x = \beta$$



INTEGRAL CURVES IN THE PHASE PLANE

Simpler equations of this basic type have been studied for a number of years, and computers have produced many phase-plane plots for special values of the parameters, such as shown above. For fuller understanding of the circuit operation, however, new analytical methods are being investigated at Philco which may give an overall picture of the solutions of this, and even more general, equations.

This study is typical of the Philco Scientific Laboratory's activity in applied mathematics. Philco offers attractive staff positions in this field and in a number of others such as electrodynamic theory, optical communications, pattern recognition, and solid state electronics. Applications and inquiries may be addressed to: Mr. W. H. Diefenbach, Personnel Manager, Philco Scientific Laboratory, Blue Bell, Pennsylvania.

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