THE INTERNATIONAL COMMITTEE ON LABORATORY ANIMALS

MORE and better laboratory animals are to-day required than ever before, and this demand will continue to rise if it is to keep pace with the quickening tempo of biological, medical and veterinary research. The provision of this living experimental material is no longer a local problem; local, that is, to the research institute. It has become of national concern and, in some of its aspects such as strain nomenclature, even international. It is encouraging, therefore, to see it being considered internationally.

At a meeting of consultants called by Unesco in Paris during December 3–4, 1956, there was general agreement that a body should be formed to help solve problems arising from the increasing use of laboratory animals. As a result, an International Committee on Laboratory Animals has been set up, under the auspices of the International Union of Biological Sciences and the Council for International Organizations of Medical Sciences, with the assistance of Unesco. The Council for International Organizations of Medical Sciences includes in its membership the International Union of Physiological Societies, the International Union of Biochemistry and the International Union against Cancer.

Two independent activities had preceded this event. The first in time was the appointment of an international committee by the International Union of Biological Sciences, which arose out of a resolution adopted at its meeting in Rome in April 1955. The second was the request by Unesco for information about the production and use of laboratory animals in various countries; this was part of the cell biology programme recommended by the Council for International Organizations of Medical Sciences in December 1955. Both these activities have been taken over by the new committee.

The International Committee on Laboratory Animals consists of: (*a*) a representative of the International Union of Biological Sciences, Prof. Sven O. Hörstadius, who is president of the Union (chairman of the Committee); (*b*) a representative of the Council for International Organizations of Medical Sciences; (*c*) Dr. Dale W. Jenkins, chairman of the Institute of Laboratory Animal Resources, National Academy of Sciences—National Research Council, U.S.A.; (*d*) Dr. W. Lane-Petter, director of the Laboratory Animals Bureau, Medical Research Council, United Kingdom, honorary executive secretary of the committee; (*e*) M. M. Sabourdy, directeur du Centre de Sélection des Animaux de Laboratoire, Centre National de la Recherche Scientifique, France; and (*f*) a representative of Unesco.

The aim of this Committee is to find out what must be done to ensure that experimental biology and medicine are not hindered by a lack or shortage of suitable animals. To begin with, a survey of existing resources must be made, in order to obtain a reasonably accurate picture of supply and demand. Arrangements to survey sources and consumption of animals have already been made in the Benelux countries, France, Italy, Scandinavia including Finland and Iceland, United Kingdom and United States of America, and further countries are to be added as opportunity arises. The Committee receives financial support from the International Union of Biological Sciences and from the Council for International Organizations of Medical Sciences. Unesco is assisting substantially by placing contracts with individuals for the initial survey; by calling meetings of the Committee and providing travel grants; by much administrative help; and in time to come by printing the results of the Committee's work.

From analysis of the surveys further action will naturally develop, but among the earlier objectives of the Committee are the definition of common terms used in relation to laboratory animals, with regard to genetics, disease and parasitism, nutrition, care, performance; the compilation of a world list of strains of laboratory animals; the selection of suitable centres for the production of animals achieving a high and defined quality, or for the maintenance of master stocks of such animals; the recognition of problems which do, or are likely to, interfere with the supply of suitable animals and the action needed to forestall them; and the investigation of customs, quarantine and other regulations governing the international shipment of laboratory animals. The Committee will also examine the need for establishing an information exchange on laboratory animals; for laying down standards of education and training for animal technicians; for creating internationally recognized standards for laboratory animals and for testing animals claimed to attain such standards; and for furthering the dissemination of knowledge of this subject, possibly through symposia or congresses.

Some of these activities have already been started by national organizations, and the new Committee will lean heavily on the accumulated experience in different countries. The Laboratory Animals Bureau in the United Kingdom, formed in 1947 by the Medical Research Council, has already conducted a detailed survey in Britain[1]. The technique of this survey, and its analysis and presentation, may be taken as a model, subject to modification appropriate to other countries. The Institute of Laboratory Animal Resources in the United States, formed in 1952 by the National Academy of Sciences—National Research Council, has done similar work and published a "Handbook of Laboratory Animals"[2]. Its present activities are numerous, but among them may be mentioned the determination of standards for certain types of laboratory animals, which will also be a model for the International Committee. The Centre de Sélection des Animaux de Laboratoire in France, among other activities, is building up a repository of master strains of animals from which producers—commercial or laboratory—can draw breeding stocks.

Most of the work has yet to be done in regard to definitions, logistics and care of laboratory animals, and it should be done internationally. Animals must be defined as to quality, but if the definitions are esoteric, local or ambiguous they will soon cease to have any meaning. Such has been the fate of the 'Swiss' mouse, for those labelled 'Swiss' may to-day be no more than albino, and albinism can cover a multitude of genes. As a result of the new Committee's work, the experimental biologist can look forward to being able to state precisely what animals he has

used or wishes to use, in terms that are universally accepted, so that his colleague in another continent will know immediately the nutritional requirements, the state of freedom from specific infection, the pedigree and the possible sources of the same strain.

The quality of the animals sooner or later limits all work for which they are used. Cancer workers were among the first to realize this, and much of their research would to-day be impossible without the highly defined strains of mouse and rat being used. In the field of bio-assay the amount of frustrated effort resulting from the use of inadequate animals can only be estimated by the minority who have taught themselves, if not their colleagues, the value of good ones. But it is of little benefit to swell the minority into a majority unless, first, there is agreement on the definition of quality and, second, the better animals can be produced in sufficient numbers. The first of these provisos is a matter for the International Committee. Those who hold the purse strings of research can facilitate the second by taking the laboratory animal from the bottom of the list of claims and placing it somewhere near the top, Lastly, the research worker himself can give decisive support by insisting on being provided with better animals, and making good use of them when he gets them.

W. LANE-PETTER

[1] See *Brit. Vet. J.*, **111**, 282 (1955).
[2] See *Nature*, **175**, 26 (1955).

GAS CHROMATOGRAPHY

A SYMPOSIUM on gas chromatography, organized by the Hydrocarbon Research Group of the Institute of Petroleum, was held in London during May 30–June 1. The meeting was attended by nearly four hundred members from thirteen different countries, and the thirty-four papers presented covered all aspects of gas chromatography. The full proceedings, complete with discussion, will be published by Messrs. Butterworths shortly. It was felt that in this rapidly growing field, nomenclature and methods of presentation of data should be standardized as early as possible. A special Committee was accordingly nominated, comprising Dr. A. J. P. Martin (chairman), Mr. C. S. G. Phillips (secretary), Mr. D. H. Desty, Dr. E. Glueckauf, Dr. A. T. James and Dr. A. I. M. Keulemans. At the end of the symposium the chairman presented the Committee's recommendations, which were as follows.

Nomenclature

(*a*) That the term 'gas chromatography' be used to describe all chromatographic methods in which the moving phase is a gas, and that the term 'vapour phase chromatography' be no longer employed.

(*b*) That the term 'gas–liquid chromatography' be used to describe all gas chromatographic methods in which the fixed phase is a liquid (distributed on an inert support).

(*c*) That the term 'gas–solid chromatography' be used to describe all gas chromatographic methods in which the fixed phase is a solid (for example, charcoal, zeolites).

(In this report the Committee uses the term 'chromatography' only where a fixed phase is involved.)

Presentation of Retention Values in Gas–Liquid Chromatography

Since for many purposes it is unnecessary to determine absolute retention volumes, and since, by the use of an internal standard the corrected retention volume per gram of liquid phase of which has been measured, all values can be compared, it is recommended:

(*a*) That the retention values (retention volumes or retention times of concentration maxima) should be expressed relative to an internal standard; that in presenting values for a series of substances, the internal standard substance should be chosen so as to have a retention value near the middle of the series; that internal standards with very low retention values should not be used; that retention values should be corrected for dead-volume (by injection of a permanent gas) before these values are expressed relative to the internal standard; that such results should be quoted with the exact composition of the fixed liquid phase, the nature of the support material, and the exact temperature at which the column has been operated; that column temperatures be controlled by means of vapour jackets or circulating-fluid (liquid or air) jackets. It is felt that results obtained with a column which varies in temperature (along its length, or during the course of a run) will be of little value.

(*b*) That whenever possible the corrected retention volumes per gram of liquid phase (that is, V_g values) should be measured for the internal standard, careful corrections being made for the pressure drop across the column. These values may be obtained by the following procedure:

(1) Determine the volume of gas (measured at the exit pressure of the column, and corrected to dry gas at the column temperature) which has passed from the column between the emergence of the dead-volume (permanent gas) peak maximum and the peak (concentration) maximum of the internal standard.

(2) Correct this volume for the pressure drop across the column by multiplying it by the reducing factor

$$\frac{3}{2} \cdot \frac{(p_1/p_0)^2 - 1}{(p_1/p_0)^3 - 1}$$

where p_1 is the pressure at the beginning of the column, and p_0 the pressure at the exit. The values of p_1 and p_0 should be recorded.

(3) Divide the corrected retention volume so obtained by the weight (in grams) of the fixed liquid phase.

The Committee has envisaged the possibility that the measurements in sections (*a*) and (*b*) may sometimes be made by different workers. Attention is directed to the need, in connexion with the corrected retention volume, of accurate measurements of flow rate. It is not considered that rotameter readings are of sufficient accuracy for this purpose, and the use of soap-bubble or capillary flowmeters is suggested.

(*c*) That the following substances should be used as internal standards: *n*-butane; *iso*-octane (2 : 2 : 4-trimethylpentane); benzene; *para*xylene; naphthalene; methylethyl ketone; *cyclo*hexanone; *cyclo*hexanol.

(*d*) That in presenting retention values for new substances, one or more of the following liquid phases