REPORT
ON THE ACTIVITIES
AND THE MEETING
OF THE

Co-ordinating Committee on Abstracting and Indexing in the Medical and Biological Sciences

UNESCO

CO-ORDINATING COMMITTEE ON ABSTRACTING AND INDEXING IN THE MEDICAL AND BIOLOGICAL SCIENCES

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U N E S C O

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*Resolutions have been printed on three three-page folders so that the reader can see them and the text at the same time.

INTRODUCTION

THIS, *the First Report on the work of the Co-ordinating Committee on Abstracting and Indexing in the Medical and Biological Sciences, gives an account of the origin of the Committee and of its proceedings and decisions to the end of* 1949. *Papers prepared for its meetings by the Secretariat of Unesco and by members of the Committee are reproduced in full with such parts of the discussions as contribute to explain attitudes of mind or to clarify issues.*

The only purpose that this introduction serves is, therefore, to define, at the outset, the field within which the interests of the Committee lie. It is concerned primarily with human medicine and only with such parts of biology as have an immediate bearing on medical knowledge.

The Committee moves therefore within a specialized and limited province and there should be little difficulty in defining the boundaries that separate it from the ground still to be covered by other committees (see p. 87*) proposed at the Unesco International Conference on Science Abstracting in June,* 1949.

THE ORIGIN OF THE COMMITTEE

In June 1946 the British Medical Association directed the attention of the Unesco Preparatory Committee to the forthcoming entry into the field of medical abstracting of two new services. The preparations of the British Medical Association to produce *World Abstracts of Medicine* were well advanced when it became known that similar preparations were being made by a group of scientists in the Netherlands. Both groups were actuated by the desire to replace services which had ceased to function during the war and, indeed, to replace them with something better and less costly.

The Unesco Secretariat concurred in the view expressed by the British Medical Association that only an international body, and therefore Unesco in particular, could intervene to avoid such apparent duplication of effort or co-ordinate such activities. It was agreed that representatives of the British Medical Association and the Netherlands editors should be invited to meet with the Secretariat of Unesco and they met in Unesco House in December 1946.

Other meetings followed which served to indicate what Unesco could do to co-ordinate the abstracting of scientific literature. The third meeting, at which other interested organizations were represented, was in October 1947 and it decided it was desirable to have a Co-ordinating Committee to work with Unesco. This view was submitted to the Second General Conference of Unesco at Mexico City and approved. The Interim Co-ordinating Committee on Medical and Biological Abstracting first met at Unesco House on 5 and 6 April 1948.

An abbreviated account of the October meeting, which gives information about the origin and development of each of the abstracting services represented, and more detailed reports of the later meetings follow.

PREPARATORY CONFERENCE

UNESCO HOUSE, 3 AND 4 OCTOBER 1947

Present :

Dr. Hugh Clegg, *British Medical Journal*, British Medical Association, London.
Mrs. E.R.Cunningham, Medical Library Association, U.S.A.
Dr. G. M. Findlay, *Abstracts of World Medicine*, British Medical Association, London.
Dr. John E. Flynn, *Biological Abstracts*, Philadelphia.
Dr. Landshoff, *Excerpta Medica*, Amsterdam.
Mr. P. A. Warren, *Excerpta Medica*, Amsterdam.
Professor Samson Wright, *British Abstracts*, London.
Professor W.P.C. Zeeman, *Excerpta Medica*, Amsterdam.
Mr. Zygmunt Deutschmann, World Health Organization, Director of Technical Services.

Unesco Secretariat :

The Director-General
Dr. J. Needham, Dr. I. M. Zhukova, Mr. J. B. Reid } Natural Sciences Section.
Mr. E. J. Carter, Libraries Section.

The Director-General welcomed the delegates and suggested that Dr. Clegg should be Chairman and Mrs. Cunningham, Vice Chairman of the Conference. Dr. Needham added his welcome and spoke of the dual problem of getting information to remote parts of the world and getting to know of the work in certain areas. General rationalisation of scientific publications, including abstracting, was needed and a world conference should be held to discuss how that might be accomplished.

At the invitation of the Chairman, the representatives of Abstracting Services each made a statement about the scope and organization of his work.

Biological Abstracts.

Dr. Flynn said that *Biological Abstracts* was founded in 1926 by the amalgamation of *Bacteriological Abstracts*, founded in 1917, and *Botanical Abstracts*, founded in 1916. These had been created by American scientific societies to replace German commercial journals. Their amalgamation was arranged by a joint committee of the National Academy of Sciences, the American Association for the Advancement of Science and the Union of American Biological Sciences. The *Biological Abstracts* Board of eleven trustees instructs the editors.

The instructions were to abstract every research paper that merits permanent record in biology. This ideal had not yet been realized. The world field was

estimated at 6,000 or more research periodicals ; 10,000 if trade journals were included. At 1 January 1946 *Biological Abstracts* covered 1,950 periodicals and at 1 September 1947, 2,650. Abstractors from nearly every nation contributed, about 4,400 in all. In general, scientists were willing to abstract in their own field without payment. Authors were invited to contribute abstracts of their own papers and this had given good results over twenty years.

Excerpta Medica.

Professor Zeeman described how a group of Dutch scientists, believing that a comprehensive survey of literature in medicine and biology was needed, had asked for, and been promised, the assistance of scientists in other countries to provide such a service. Money and publishers had been found and the first four of the fifteen parts planned were already appearing.

British Abstracts.

Professor Wright said that *British Abstracts* was the result of the amalgamation in 1938 of *Chemical Abstracts* and *Physiological Abstracts*. The journal was published by the British Bureau of Abstracts. It appeared in several sections of which two, *Biological Sciences* and *Methods in Chemistry and Biology*, aimed to serve the research worker in medicine, but not the practising physician ; they provided indicative abstracts for people who had access to libraries and microfilm. The scientific societies which supported the undertaking obtained its services at cheap rates.

Professor Wright found it difficult to get journals from remote countries and foreign countries generally. He relied on editors in these countries to organize abstracting committees and such committees were active in Switzerland, Italy, Hungary, Finland, Norway, South America and other areas. He preferred that such abstracts should be made in the original language and he suggested that Unesco might organize a central translating bureau for abstracts in languages other than English.

Abstracts of World Medicine and Abstracts of World Surgery.

Dr. Findlay sketched the development of medical abstracting in Great Britain from the *Tropical Diseases Bulletin*, started in 1912, through the *Bulletin of Hygiene* about 10 years later, to the *Bulletin of War Medicine*, organized by the Medical Research Council and the Bureau of Hygiene and Tropical Medicine to help medical officers during the war. The *Bulletin of War Medicine* had been so much appreciated that something permanent on the same lines was thought to be desirable. The British Medical Association decided that similar journals should be produced and that the objectives should be (1) low price ; (2) selected material ; (3) quick publication ; and (4) to give the practising physician and surgeon a general idea of all the most important papers published.

Abstracts of World Medicine and *Abstracts of World Surgery* covered 1,500 journals at that date, including 14 out of the 24 existing Russian journals. Most of the abstractors were medically qualified and competent to deal with most European languages. Author's abstracts were usually avoided.

On behalf of the Medical Library Association Mrs. Cunningham spoke of the survey of existing abstracting services undertaken by the Association and of the desire for truly international services. The ideal was one service for biology and one for clinical medicine.

The representative for the World Health Organization, Mr. Deutschmann,

said that the Interim Commission was interested in and would support a plan for a unified abstracting system. He hoped that the distribution of existing abstracts might be improved and that the services would become international. Mr. Deutschmann said later, in reply to a question about abstracting services within WHO, that the Organization had an obligation to provide bibliographical guidance on specific problems, epidemiology, sanitary matters and quarantine. The Secretariat of WHO had before it a plan for an abstracting service in preventive medicine and town planning but the work might be done by existing services ; and a proposal had been made that the *Tropical Diseases Bulletin* and *Bulletin of Hygiene* should be translated into other languages and more widely circulated.

The difference in cost to the subscriber between abstracting journals produced on a commercial basis and those sponsored by scientific bodies and produced on a non-profit-making basis was discussed with special reference to *Excerpta Medica.* Abstracts in *Excerpta Medica,* per 1,000 words, cost the subscriber three times as much as those in *World Abstracts.*

A paper prepared by Dr. Zhukova and Mr. Reid of the Unesco Secretariat was taken as the basis for discussion of possible organized co-operation. This paper is reproduced below with the discussion and decisions relevant to the several points argued.

PRELIMINARY CONSIDERATIONS CONCERNING CO-OPERATION IN SCIENTIFIC ABSTRACTING THROUGH AN INTERNATIONAL CLEARING-HOUSE.

1. *Introduction.*

It has long been recognized that the state of affairs in scientific abstracting is far from satisfactory. Some scientific papers are abstracted by many different abstracting organizations. Many scientific papers are never abstracted. It is clear that international co-operation may be required to eliminate duplication of effort and to ensure complete coverage. For at least each major field of science, there might be an organization, founded upon co-operative principles and with support throughout the world, which would undertake the comprehensive abstracting and indexing of all the literature of that field. The practical problem is to determine how this co-operation may be established. The following considerations are put forward as a basis for discussion. It indicates only one among several possible solutions of the problem.

It was agreed : (1) that a comprehensive abstracting service, in the sense of abstracting all articles of all journals, is impossible and undesirable ; it is the survey of literature that must be comprehensive, and (2) that co-operation could be established only between services operated on a non-profit-making basis.

2. *The Medical Field.*

2.0. It might be desirable that co-operation should first be established in medical abstracting, because Unesco has been urged from several quarters to take action in this field and because the more important abstracting journals concerned have expressed willingness to consider the matter.

2.1. There are four principal abstracting organizations at present in operation in the field.

Excerpta Medica, of Amsterdam, is a complete and non-selective abstracting service of the literature of the whole field of theoretical and clinical medicine. It appears in fifteen sections, and, because of its size, is expensive ; hence its use is largely restricted to specialists, research workers and libraries.

The British Medical Association, London, publishes two abstract journals : *Abstracts of World Medicine* and *Abstracts of World Surgery*. These journals select for abstracting papers which are mostly of interest to the general practitioner, and give a critical appraisal of each paper.

Physiological Abstracts, published by the Bureau of Abstracts, London, and *Biological Abstracts*, Philadelphia, cover non-clinical subjects of interest to the medical research worker, such as anatomy, embryology and histology, physiology, biochemistry and pharmacology, endocrinology, microbiology and hygiene, general pathology and pathological anatomy.

2.2. All these abstract journals have expressed willingness to consider the matter. *Excerpta Medica*, the British Medical Association and the Bureau of Abstracts have already had preliminary conversations with a view to arranging co-operation and have expressed eagerness that action should be taken. The (American) Medical Library Association, in a letter of 22 April 1947, put detailed proposals before Unesco for co-ordination in this field and the (American) National Research Council recently passed a resolution urging Unesco to take action.

2.3. For these reasons, it is considered that Unesco's first efforts should be directed towards the medical field, and it is proposed that collaboration should first be arranged between the four abstracting agencies already named.

A resolution was passed : "The Conference recommends that an attempt be made to secure the co-operation of abstracting services of non-medical sciences in indicating to the medical abstracting services articles of possible medical interest" and the following additional collaborators were suggested : *Bulletin of Hygiene*, *Bulletin of Tropical Medicine*, *Nutrition Abstracts and Reviews*, *Bulletin of the Pasteur Institute* and a Belgian service.

3. *A possible scheme for co-operation in the Medical Field.*

3.0. The following possible scheme by which co-operation might be established is put forward to provide a basis for discussion.

3.1. The first step is to agree on the fields to be covered by each organization and the type of abstracts which it will produce. Perhaps *Excerpta Medica* and the British Medical Association journals should restrict themselves to the clinical field, the former continuing to be non-selective, and the latter to be selective. Due to their geographical separation, *Physiological Abstracts* and *Biological Abstracts* might continue to cover the same fields in order to achieve rapid delivery to their readers ; but they might reach an agreement on a method of classification which will render it unnecessary for a reader to subscribe to both in order to be sure of getting a complete service.

Professor Wright and Mrs. Cunningham were in favour of short indicative abstracts ; the Chairman, within the limits of the 10 per cent allowed by copyright law, Dr. Flynn, Dr. Findlay and Professor Zeeman urged the need for informative abstracts because of people who were remote from libraries and because of language barriers. Mrs. Cunningham spoke of the translation services provided in the United States and Mr. Deutschmann confirmed that WHO had relied on the Army Medical Library Microfilm Service during the war.

It was agreed : "The Conference recommends that abstracts should give enough information to the reader to enable him to decide whether he should consult the original article abstracted, and should include the principal data of the article. In addition, abstracts should be prepared according to the special requirements of the reader."

Dr. Findlay said that even a small selective service found it difficult to get abstracts out under four or five months from publication of the original papers. An experiment might be tried to find out if collaboration could shorten the interval.

3.2. The next step would be to agree on which journals should be abstracted by each organization. The British Medical Association could handle all journals

published in English which deal with clinical medicine, while *Excerpta Medica* could handle the journals published in other languages.

For the case of *Biological Abstracts* and *Physiological Abstracts*, a geographical division might be feasible; the latter handling journals published in Europe, and the former, journals published in the rest of the world.

The possible partition of the field between abstracting services was discussed chiefly in terms of subject matter and with specific reference to the overlap between *Excerpta Medica* and *Biological Abstracts*, with some complicating overlap by WHO in Public Health and Social Medicine; and between *British Abstracts* and *Biological Abstracts*. The Conference recommended that *Biological Abstracts* "consider revising its subject scope with a view to excluding material appropriately covered by other organizations" and Dr. Flynn said the matter could be referred to the Board of Trustees.

3.3. The third step would be to arrange for the exchange of the completed abstracts, so that each abstract journal may publish abstracts of papers in its agreed field from the whole world, though itself only abstracting papers from part of the world.

The division of journals proposed in step 2 should be such that each organization does its fair share of the abstracting work. It may be impossible to achieve complete justice in this, and a scheme for monetary payments might be agreed upon to rectify the residual inequality.

The Chairman asked whether the most important aspect of collaboration was to avoid duplication in the work of abstracting. Dr. Flynn and Professor Wright, Professor Zeeman and Mrs. Cunningham thought it was. Dr. Findlay doubted whether two services would necessarily select the same papers for abstracting and Mr. Carter, with workers in isolated regions in mind, thought the choice of papers important. The Conference recommended that *Biological Abstracts* and *British Abstracts*, and *Excerpta Medica* and *World Abstracts* should "explore the possibility of collaboration" by exchange of abstracts. It was suggested that two abstracts of the same paper were justified if different readers were being catered for.

3.4. A possible basis for accounting would be to charge each organization a fixed amount for each abstract supplied to it, multiplied by the circulation which the organization gives it. For example, if the fixed charge is $0.001 per abstract copy, and if journal "A", with a circulation of 5,000, receives 12,000 abstracts from journal "B", it will owe journal "B" $60,000. If at the same time journal "B", with a circulation of 8,000, receives 10,000 abstracts from journal "A", journal "B" will owe journal "A" $80,000. On balance, journal "B" will owe journal "A" $20,000.

The Chairman did not think a discussion of accounting would be useful at this stage.

3.5. The details of arranging the exchange of abstracts and keeping the accounts might be handled by an international clearing-house. Its operation is summarized diagrammatically in figure 1.[1]

Mr. Carter said the question of a clearing-house for medical abstracts might be considered in t woparts.

1. Not reproduced.

1. The necessity of electing a small carefully selected group of experts to deal with each field of abstracting, to be charged, through Unesco, with continuing responsibility for the main problems of co-ordination in this field. Mr. Carter thought there was no need for an elaborate structure within Unesco, but the necessary service from Unesco's point of view could be provided by the Natural Sciences Department and the Libraries Section.

2. The establishment of a permanent bureau to deal with the question. Mr. Carter considered this could be run out of the economies the creation of such a bureau would eventually effect in abstracting. This bureau would, of course, be recognized by Unesco.

It was agreed that further conferences for discussion with Unesco were required. The main need was for continuing contact with and through Unesco.

3.6. The expenses of the clearing-house might be met by making a small percentage levy on the total turnover between the organizations. If this percentage levy were 1, the clearing-house would receive $1,400 from the transactions just described. The benefit to both organizations would obviously be far in excess of this small charge.

Since no decision about a clearing-house was possible, this item was not discussed.

3.7. It might be well to set up a co-ordinating committee which should contain representatives of each of the abstracting organizations, Unesco and possibly the World Health Organization. This Committee could discuss schemes for co-operation such as that put forward above and, when it had agreed upon a scheme, could be charged with its general supervision and administration. In addition, it could draw up standards for abstracting and could establish rules to govern the work of the abstractors.

It was agreed that "a Co-ordinating Committee should be set up under the auspices of Unesco" and that "the work of abstract services subsequently admitted to membership should be international in scope". The international organizations, WHO, International Federation for Documentation, International Federation of Library Associations and Medical Library Association should be invited to send representatives.

It was also agreed that all the members of the Conference should submit suggestions on the preparation of abstracts to Dr. Zhukova.

4. *Further Extensions.*

4.0. If the scheme put forward in paragraph 3 were to be adopted and prove successful, it might be extended in two directions :

(1). the publications of abstracts in other official languages of the United Nations such as French, Russian and Spanish ;

(2). the extension to fields other than medicine and biology.

Professor Wright asked whether there was a demand for abstracts in other languages, particularly Russian. Dr. Zhukova replied that there was an immense demand in the Soviet Union. Translations would be required by most practising physicians and by scientists. On principle, Soviet Russia would like to have an abstracting service in Russian and this would open the way for exchange of abstracts. Professor Wright asked whether

Russia would give permission for all its abstracts to be used and Mr. Reid replied that it was a question only of abstracts, not of original papers. Dr. Needham said a Russian translation of the *British Medical Bulletin* was widely read during the war and much appreciated. On the other hand, he did not think translation into Chinese would be worth while because the number of medical men was small and in general they knew one European language.

It was approved that "Unesco should enquire into the demand for abstracting services in languages other than English, and into the existing facilities for translation".

4.10. The extension to other languages could in most cases be arranged by bringing existing abstracting and publishing organizations into the scheme. For example, the Soviet publishing organization Biomedgiz could be asked to abstract all papers appearing in the Slavonic languages and, in return, would receive abstracts of the papers appearing in all the other languages. Similarly, a French abstracting organization could be asked to abstract all journals in French and Italian, while an organization in Latin America could be asked to abstract all papers appearing in Spanish and Portuguese, each receiving in return all abstracts appearing in all the languages not covered by it. It is possible that Unesco National Commissions in Latin America might prove useful in setting up the abstracting organization in that area.

The effect of this extension would be to reduce the abstracting duties of the original organizations in the scheme, while at the same time giving them an increased circulation and income for the abstracts which they produce. The new organizations would be able to provide their readers, at a very moderate cost, with abstracts, written in their own language, of papers appearing all over the world. The extended scheme is shown diagramatically in figure 2.[1]

Professor Wright described the National Abstracting Committees, consisting of an editor and a number of experts, which provided material for *British Abstracts*. Dr. Flynn had previously read a resolution passed by the Board of Trustees of *Biological Abstracts* which urged the world-wide preparation of abstracts by authors. The Chairman was not in favour of author's abstracts since they were frequently misleading and contained conclusions not drawn entirely from the material presented.

It was recommended that "*Biological Abstracts* and *British Abstracts* should consider co-operating through the use of the same national professional committees which provide abstracts of articles appearing in the journals of their own countries".

It was further suggested that *Excerpta Medica* and *World Abstracts* should consider co-operating on the same lines.

4.11. If each abstracting organization translates the abstracts it receives from the clearing-house itself, it will have to employ translators competent in each of the three other languages in which the abstracts are being published. In addition, *Excerpta Medica* and the British Medical Association, on the one hand, and *Biological Abstracts* and *Physiological Abstracts*, on the other hand, will each be duplicating the work of translation. It might prove more efficient for the translation services of the scheme to be located in the clearing-house. If this should be done, the charge for each translation should be based on the length of the abstract and not on the circulation it receives.

1. Not reproduced.

Mr. Deutschmann said WHO automatically provided English and French, but not Spanish texts ; in reply to a suggestion from Mr. Reid that the proposed clearing-house might provide all translations he said that his experience at the League of Nations was that it would be safer to decentralise because of technical difficulties with language. After further discussion it was agreed to recommend "that Unesco be asked to promote the preparation and publication of comprehensive multi-lingual dictionaries of the biological and medical sciences".

4.20. Extension of the scheme to other subjects might be arranged by bringing the abstracting agencies in these other fields into the operation of the clearing-house, or by establishing similar clearing-houses in these other fields.

4.21. The unified scheme has much to be said for it, due to the interpenetration of the sciences. For example, the clearing-house could arrange that a medical paper containing information of interest to chemists would be brought to the attention of the chemical abstracting agencies. On the other hand, separate clearing-houses for each science would allow closer control by the scientists working in this subject.

These paragraphs were not discussed.

A brief discussion on copyright followed and it was decided that an expert should be invited to attend the next meeting to give guidance in relation to abstracts.

ANNEX 1

LETTER FROM NATIONAL RESEARCH COUNCIL

From : National Research Council, 2101 Constitution Avenue, Washington 25, D.C.
to : The United States National Commission on Unesco.

8 September 1947.

Sirs,

The Committee on Unesco of the National Research Council is greatly concerned with the problems of scientific literature abstracting in the field of the biological and medical sciences. The Unesco Secretariat has called a conference of interested persons to meet in Paris on October 3-5, 1947, to consider constructive approaches to the solution of present problems. It is the opinion of this Committee that the active interest of the U.S. National Commission in the entire question is desirable because scientific publication is at the heart of international co-operation in science and because, further, abstract and indexing publications and services are among the most important tools in science.

1. It is recommended that the U.S. National Commission and the U.S. Delegates in Unesco study the problem carefully and undertake to recommend action which will help in solving the basic problems. The National Research Council Committee on Unesco at its meeting on 3 September, 1947 passed the following resolutions :

> This committee commends the Sciences Division of Unesco for its calling of a meeting on the problem of biological and medical abstracting, and we again urge that strong effort be made for an early constructive solution of this problem.
>
> We recommend that duplication of effort be avoided insofar as possible but that coverage of the entire biological and medical literature be achieved at a cost which individuals and libraries can afford to pay ;

and instructed a sub-committee to draw up this letter for amplification.

Specifically it is believed that Unesco has a unique opportunity to perform a useful function in the international aspects of science by assisting biological and medical abstracting services to accomplish (*a*) full coverage in biology and medicine, (*b*) elimination of wasteful duplication and (*c*) publication at reasonable prices, in the range of $ 30.00 per year for biology and medicine. It is believed that non-profit enterprises managed by international organizations of scientists are most likely to accomplish these objectives. It is further believed that the possibility of an amalgamation of existing non-profit agencies on an international basis should be explored. Finally, it is suggested that much of the expense and difficulty of publication of abstracts could be eliminated if a recognized international agency such as Unesco undertook to obtain from every journal editor an author's abstract of each paper accepted for publication, of prescribed length

and in a uniform style. Unesco could probably obtain co-operation impossible for other agencies to achieve.

2. A great need exists at the present time in the matter of abstract services in the field of biology and medicine. Several agencies are working in one or several of the various branches of the whole field, but no agency covers any large part of the field really completely, and all of the agencies together fail to cover the entire field. The largest single contribution is made by *Biological Abstracts*, a non-profit agency sponsored by several American scientific societies. It abstracts about 25,000 papers per year in some 1,500 journals in the biological sciences. The total number of periodical publications in biology is about twice this number.

A great deal, but by no means all, of the work of *Biological Abstracts* is duplicated by several British agencies, in the Bureau of Abstracts. Neither *Biological Abstracts*, nor the British Bureau, has attempted in the past to cover the field of clinical medicine. Recently the British Medical Association has launched two abstracting services, one in Medicine and the other in Surgery, Gynecology and Obstetrics.

A new factor has been introduced in the problem by the initiation this year of still another abstracting journal, *Excerpta Medica*, published in English in the Netherlands by a private publisher. The publisher proposes to publish this journal in 15 sections to cover not only all of the clinical fields, but also the sciences basic to medicine.

3. An important aspect of the abstracting problem is cost. By way of basic comparison it may be noted that *Chemical Abstracts*, covering the whole field of pure and applied chemistry is published by the American Chemical Society at a subscription price of $ 12.00 per year. It had 16,729 subcriptions in 1945. *Biological Abstracts* has been able to operate at a total subscription price of $ 27.50 per year and had 5,534 subscribers to parts or all of its sections in 1946.

4. What is needed in the biological and medical abstracting fields is complete coverage of the periodical literature at subscription prices which medical libraries and many individuals in all countries will be able to afford. Abstracting services are useful only in proportion to the extent to which they can be distributed for use. Unesco can perform a useful service in connexion with abstracting services in this field only if it can assist in meeting the two prime objectives of such services, complete coverage and low price. It should also be noted that promptness of abstracting publication and extensiveness of indexing are also important qualities of a good abstracting system.

5. This Committee believes that financial assistance to a truly international and comprehensive non-profit abstracting service in biology and medicine would be quite justified, especially during the formative stages. It is believed that once it were in operation such a service should be entirely self-supporting. The first years might not be possible to manage without subsidy. There might, however, be a permanent assistance function for Unesco in supplying a translation service for publication in more than a single language.

6. It should be stressed that relatively small sums of money are involved in these proposals. The present budget of *Biological Abstracts* is $105,000 per year. To double the coverage, which is contemplated, by an international agency would approximately double the total outlay, but there would be imme-

diate increases in income covering some of the difference immediately, and presumably all eventually. Considering the relatively enormous monetary and human value of biological and medical science to mankind such sums are absolutely trifling.

Yours sincerely,

Maurice B. VISSCHER,
University of Minnesota
Chairman of sub-committee.

R. E. CLELAND,
Indiana University.

J. S. NICHOLAS,
Yale University.

R. L. ZWEMER,
National Research Council.

ANNEX 2

STATEMENT BY MRS. CUNNINGHAM ON *INDEX CATALOGUE* OF SURGEON-GENERAL'S LIBRARY AND *INDEX MEDICUS*

Mrs. Cunningham reported that a meeting would be held in Washington within the next few days to discuss the possible amalgamation of the two American indexing services, the *Index Catalogue* of the Surgeon-General's Library and the *Quarterly Cumulative Index Medicus*. They hoped to pool their resources and centralise their offices.

The following resolution was passed :

"Recognizing the great services the *Index Catalogue* of the Surgeon-General's Library and the *Quarterly Cumulative Index Medicus* have contributed to medical science, the Conference nevertheless would welcome any step towards the amalgamation of these services so that the information they provide may be even more complete and be made available more quickly to readers."

ANNEX 3

PROPOSAL FOR AN INTERNATIONAL ABSTRACTING SERVICE FOR BIOLOGY AND MEDICINE

Many replies have now been received in response to the report on existing abstracting services of the biological and medical literature, sent out by the Medical Library Association's Committee on a Co-ordinated Abstracting Service for Clinical Medicine. The general tenor of these comments shows that many scientists in the United States favour the co-ordination of the abstracting of these sciences under a central international organization.

This organization might issue two comprehensive publications, one in the biological sciences, one in the medical sciences. Each publication could appear in subject sections, each section functioning under an editor or editorial board of specialists. In producing the sections, existing facilities could be utilized as far as possible, but all would be part of the international organization. All participating services would contribute to the whole plan and each would have its definite field of activity.

Editions in various languages could be prepared as demands arose.

The accompanying charts[1] show how the abstracting of any science can be handled under the plan stated above ; the illustration given shows its application to medicine.

As a first step in the achievement of the above proposal, it is recommended that a committee be formed immediately under Unesco's auspices to study the situation. It is suggested that this committee be made up of representatives of Unesco, the World Health Organization, the International Federation of Documentation and users of abstracts (scientists and librarians) as well as of the abstracting services. It is felt particularly important to give representation to those for whose benefit, presumably, the abstracts are published, namely biologists, the medical profession and the librarians who serve them.

Committee on a Co-ordinated Abstracting Service for Clinical Medicine

Medical Library Association.

Eileen R. CUNNINGHAM, Chairman,
Vanderbilt University School of Medicine Library.

1. Not reproduced.

FIRST MEETINGS OF THE INTERIM CO-ORDINATING COMMITTEE

UNESCO HOUSE, 5 and 6 APRIL 1948

Present :

Chairman : Dr. Hugh CLEGG, *British Medical Journal*, British Medical Association, London.

Vice-Chairman : Mrs. E. R. CUNNINGHAM, Vanderbilt University School of Medicine, representing the Medical Library Association, U.S.A.

Members :
Mr. F. DONKER-DUYVIS, International Federation for Documentation.
Dr. G. M. FINDLAY, *Abstracts of World Medicine*, British Medical Association, London.
Dr. Leslie LAMPITT, *British Abstracts*, London.
Dr. F. H. LANDSHOFF, *Excerpta Medica*, Amsterdam.
Prof. M. W. WOERDEMAN, *Excerpta Medica*, Amsterdam.
Prof. Samson WRIGHT, *British Abstracts*, London.
Dr. A. HAHN, International Federation of Library Associations.

Observers :
Mr. Louis GROS, United Nations.
Mr. Z. DEUTSCHMANN, Interim Commission of the World Health Organization.
Dr. N. HOWARD-JONES, Interim Commission of the World Health Organization.
Dr. E. J. CRANE, *Chemical Abstracts*, Columbus, Ohio.
Prof. E. VELANDER, Ingeniörs Vetenskaps Akadmien, Stockholm.

Unesco Secretariat :
Mr. W. H. C. LAVES, Deputy Director-General.
Dr. J. NEEDHAM, Natural Sciences Section.
Dr. I. M. ZHUKOVA, Natural Sciences Section.
Prof. P. AUGER, Natural Sciences Section.
Mr. J. B. REID, Natural Sciences Section.
Mr. E. J. CARTER, Libraries Section.
Mr. A. MØLLER, Libraries Section.
Dr. THOMPSON, Unesco representative in Germany.
Mr. F. HEPP, Copyright.

The Deputy Director-General of Unesco welcomed the participants. He spoke of the importance of medical and biological abstracting for the establishment of closer working relations between scientists and scholars everywhere. Lack of communication gave rise to barriers between people.

Unesco could not itself be an abstracting agency ; it could only bring together the people concerned.

Dr. Needham, opening the Conference, said abstracting services and scientific publications were of major interest to Unesco. A panel of experts covering all sciences would meet during the week and a large conference would be held later. He believed that a World Council of Scientific Abstracting Services was needed ; in the meantime the different groups of people interested would be brought together. If and when a World Council was created there would be associated with it the International Council of Scientific Organizations, the World Health Organization, the Food and Agriculture Organization, the International Civil Aeronautical Organization, the International Meteorological Office, and such smaller intergovernmental bodies as the International Council for Exploration of the Sea, of which some had been established as early as 1850 or 1860.

Unesco hoped this Committee would work with WHO. It proposed in its 1949 budget to provide for secretarial assistance and travelling expenses. He thought it was time to consider the co-option of further members.

When the formal business had been completed the structure of the Committee was discussed and it was agreed that " the World Health Organization and the Food and Agriculture Organization be invited to join with Unesco in sponsoring the activities of the Interim Committee on Medical and Biological Abstracting ".

In response to Dr. Needham's suggestion that the membership should be extended it was agreed that the following services should appoint members to the Committee :

1) Bureau of Hygiene and Tropical Medicine.
2) Commonwealth Bureau of Animal Nutrition.
3) Medical and biological abstracting services in France.
4) *International Abstracts of Surgery.*
5) *The* American Medical Association.
6) *Chemical Abstracts.*

An Executive Committee was appointed with Dr. Clegg, Mrs. Cunningham, Dr. Lampitt, Professor Woerdeman, Dr. Howard-Jones and Dr. Findlay as members.

Dr. Zhukova presented a report to the Committee. She said the Second General Conference of Unesco at Mexico City had approved the request for a co-ordinating committee and allocated a small sum of money to make meetings possible. The Fifth Session of the Interim Commission of WHO approved the continuation of co-operation with Unesco on medical abstracting. The representatives of WHO should be of special help to the Committee in relation to abstracting services in the U.S.S.R., which, with the Ukraine and Byelorussia, is a member of WHO.

Dr. Zhukova reported that *Excerpta Medica* had taken steps to re-organize its service under a board of trustees consisting of professors of the University of Amsterdam and other Universities of the Netherlands. As soon as the legal formalities were completed, *Excerpta Medica* would become a full member of the Committee. [Professor Woerdeman intervened to say the legal formalities were complete except for final approval.]

Abstracts of World Medicine and *Excerpta Medica* had tentatively arranged for an experimental exchange of abstracts.

Biological Abstracts and *British Abstracts* had arranged to share European abstractors and Japanese abstracts.

With reference to the suggestion at the October meeting that *Biological Abstracts* should restrict its field, Dr. Flynn had written that the Board's decision was to continue the abstracting of research contributions on bacteriology, disin-

fection and sanitation, epidemiology, etc., but that literature relating to statistical and administrative matters could be dropped on the assumption that medical services, including the *Bulletin of Hygiene*, would handle it.

On the demand for translations into Russian and the possibility of collaboration with Biomedgiz, Dr. Zhukova reported that she had consulted the Cultural Attaché at the U.S.S.R. Embassy and the U.S.S.R. and Ukrainian representatives at the Fifth Session of the Interim Commission of WHO. They were interested and she suggested that the representatives of WHO should be asked to act as intermediaries.

Mr. Deutschmann, speaking for WHO, promised to transmit the invitation through the appropriate authorities.

A request had been sent to the Unesco Field Science Co-operation Office in Latin America that it would investigate the need for translation into Spanish. No reply had been received to date.

Co-operation with French abstracting services would be most desirable.

Dr. Zhukova then referred to a letter from Professor Woerdeman announcing that the Springer abstracting publications were to be revived and that those published by Fischer had already appeared. Unesco had informed its representative in Germany about the Co-ordinating Committee and asked him to inform those concerned about what was happening outside Germany.

The Committee agreed that further duplication of services was undesirable and, at the same time, that Germany required abstracts in German. It was left to the Executive Committee to draft a suitable resolution. The agreed resolution is No. 6 in the list on folder 2.

The Chairman reported a suggestion that Committee documents should be translated and circulated in several languages.

The resolutions passed by the October meeting (folder 1) were then reviewed and commented on as follows :

2) Mrs. Cunningham, on behalf of the Medical Library Association, outlined a plan for an International Abstracting Organization within which each branch of science would have a "steering committee".

5) Dr. Lampitt said that in the last six months three new biological journals with abstracting sections had been started in England. It was agreed that a general statement should be prepared, in consultation with Dr. Needham and Dr. Zhukova, for circulation to *Nature*, *Science*, *The Library Journal*, *Presse Médicale*, *British Medical Journal* and *Journal of the American Medical Association*.

7) Little progress had been made, partly on account of misunderstandings.

13) The Secretariat was asked to compile a list of what it considered important abstracting services in languages other than English.

14) After discussion of the difficulties involved in this proposal it was agreed that Unesco be asked to approach a publisher with a view to the publication of a polyglot glossary.

The Report on Methods of Abstracting (Annex 4) was then discussed. The idea of standardization of instructions was not approved. The abbreviations of names of journals used by the *World List of Scientific Periodicals* were recommended. Opinion differed on how bibliographical entries should be arranged and no agreement was reached. This subject and that of symbols and abbreviations in the text were remitted to the Executive for consideration. The Committee decided to recommend the use of the nomenclature of Bergey's *Determinative Bacteriology*, 1948 Edition. (This decision was later withdrawn, see pp. 51 and 82).

The use of author's abstracts was again briefly discussed, some members in favour, some against.

A note on copyright problems raised by the question of "abstracts" (Annex 5) was presented. In discussion the following additional points were made by Mr. Hepp.

Uniformity of legislation has not been obtained and "gentlemen's agreements" may be necessary about the length of abstract allowed by authors or publishers.

Both the author of an original work and the author of an abstract are protected by copyright.

The same rules apply to photostat copies as to microfilms. In general, anyone may take one copy (in manuscript or other form) for his personal use ; if that copy is passed on to others, copyright is infringed. In practice only copies intended for sale or distribution are treated as definite infringement.

An abstract that is an exact reproduction of the author's abstract is, strictly speaking, an infringement of copyright.

The resolutions passed by the meeting were revised in detail. The complete list is produced on folder 2.

ANNEX 4

REPORT ON METHODS OF ABSTRACTING

I. Terms of reference of the report.

At the Conference on Co-ordination of Medical and Biological Abstracting Services, held in Unesco House on 3 and 4 October 1947, the need was stressed for agreeing on a uniform method of abstracting and presentation of abstracts, which would be a great help in exchanging material (see p. 18, para. 3.7).

It was suggested, and finally agreed, that individual abstracting organizations represented at the Conference should submit memoranda on the technical aspects of abstracting to Dr. Zhukova, who would prepare a report from them.

Consequently, letters were sent out on 1 December 1947 to the editors of the abstracting services represented at the Conference, asking for the following information with a view to reporting on the methods of preparation and presentation of abstracts :

1) a brief statement of the criteria used by each editor in selecting a paper for abstracting ;

2) the policy which he follows regarding author's abstracts ;

3) the instructions given to his abstractors ;

4) the instructions to abstractors whose native language is not English ;

5) a list of the abbreviations employed for bibliographical reference purposes and in the text of the abstracts ;

6) other editorial rules which are followed.

Answers were received from all the organizations approached : i.e. *Abstracts of World Medicine*, *Biological Abstracts*, *British Abstracts*, and *Excerpta Medica*. The report sent by the editor of *Chemical Abstracts* is also included as it is relevant.

II. The present situation.

From all these reports a selection of the more important items has been made which is presented below point by point. From this selection one may obtain a general picture of the present situation.

1. *Criteria used in selecting a paper for abstracting.*

Abstracts of World Medicine : In order to be abstracted the paper must :

a) "provide new information of the epidemiology, cause, prognosis, or treatment of disease, detail new technical procedures, or put forward new hypotheses" ; or

b) "confirm new work on the causes or treatment of disease or discuss critically new hypotheses" ; or

c) "give an extensive critical summary of recent knowledge and/or indicate conclusions to be drawn from this summary (in most cases attention is merely drawn to the existence of such a paper)".

Each section has an honorary adviser who is a well-known specialist : the

adviser is at liberty to criticise the selection of papers and other matters related to his particular section.

Biological Abstracts : The service aims to abstract : "every journal, article, dissertation, etc., constituting original contributions to any of the biological sciences ; all monographs, textbooks, within the field ; all significant review articles ; and to give citations only for brief papers and trivial contributions."

"Papers are abstracted by biologists throughout the world :... the primary selection of papers to be abstracted therefore is delegated to the abstractors, with brief information as to the scope of the literature to be included given at the outset. The failure of the abstractors to abstract all the papers that should be reported is detected by various devices."

"The members of the central office editorial staff and the section editors exercise a secondary selection by rejecting abstracts submitted that are of papers too trivial to warrant abstract, or deemed to be outside the field of biology."

British Abstracts : The service selects such articles as fall within the scope of the various sections of the abstracts : "Non-original matter, such as reviews, lectures, etc., are given by title only, unless it contains new generalizations or stresses a new point of view which should be noted. Worthless papers are given by title only, or referred to in the briefest possible manner. Frequently journals are sent to abstractors, who are asked to use their own discretion in the selection of papers to be dealt with."

The service covers the whole field of experimental medicine and clinical science. Clinical papers, however, dealing with the art of medicine, are dealt with very briefly or omitted.

Chemical Abstracts : The service attempts to state the scope of all papers (even reviews — which are reported briefly if accompanied by references) and to abstract completely "all papers, wherever published, which report *new* information of chemical interest" (the interpretation of "chemical interest" being very broad : more or less direct bearing on chemistry or chemical engineering). "The requirement that an article must contain *new* information to be abstracted limits to papers which report either the results of experience or the results of experiment".

Excerpta Medica : All the articles contained in the journals arriving at the office are : "assigned among the various sub-editors of the sections, and then sent to competent abstract writers *(specialists)* to whom the decision is left as to whether an article is important enough to make an abstract or of such minor importance that indication of the title alone in the journal is sufficient" — depending on whether the article is informative, or non-informative.

Summary of the information.

In summing up these various statements of criteria, some points appear to be common to all of the services mentioned :

1) No service attempts to abstract all papers. It is agreed that worthless papers should be mentioned only.

2) The criterion for selecting a paper for abstracting seems to be really the quality of a paper in terms of *originality :* all services attempt to abstract every article which is significant, adding new knowledge or new criticism within their field.

3) Papers in the borderline sciences should be covered.

4) The selection is more or less at the discretion of the abstractor himself, under the guidance of a central editorial control.

5) There is no uniformity with regard to the type of literature abstracted (reviews, books, etc.)

2. *Authors' abstracts.*

The policy with regard to authors' abstracts is not uniform. Only *Biological Abstracts* uses them without reservation; it "welcomes authors' abstracts, which they find to be briefer and more accurately written"; but limits them to "actual research papers in strong research journals" — with about 250 of which special arrangements are made.

In all the other services, authors' abstracts are not used, or used as little as possible.

Abstracts of World Medicine considers them not critical enough, and uses them only when, "in the abstractor's opinion, it is impossible to summarise a paper more concisely and more accurately".

Likewise *British Abstracts*, which uses them only when an independent abstract cannot be obtained.

Chemical Abstracts uses them only if they are provided in connection with published papers and if, in the abstractor's opinion, they meet the requirements of the service. "They are not sought nor regarded as necessarily good abstracts for the purposes of the service: because the abstractors are guided by rather explicit instructions, which call for the inclusion in abstracts of certain kinds of information, and authors, not knowing of these requirements and not being experienced abstractors, often do not make this kind of abstract". As an example: if a paper is covered which reports new information concerning a large number of chemical compounds, the abstracts must list these compounds and usually give the essential information so that the compounds can be indexed, but an author's abstract is likely just to give a general statement about the information being given.

Excerpta Medica does not generally ask for them.

3. *Instructions given to abstractors.*

Abstracts of World Medicine:

1) It is considered that the gist of a paper can usually be abstracted in 500 or 600 words; perferably 300 or so.

2) Abstracts should be *informative and factual*, "aiming to give to a man who has no access to original papers the technique employed, so that it can be reproduced without further delay; the number of cases treated and of controls should be given as well as exact details of treatment with the dosage of all drugs used".

3) The author's summary should not be relied upon.

4) The abstractor should not hesitate to comment (within square brackets) on particular points in the original paper which he thinks incorrect or misleading or on which he is able to throw additional light.

5) If previous workers are referred to — of importance only — references should be given [e.g. this is not in accordance with the work of Brown (*Lancet*, 1942, i, 587)].

6) An indication of the source of the work presented in the article should be given (e.g. the authors have studied 150 cases of... at the Johns Hopkins University, Baltimore).

7) The abstractor should indicate the desirability of tables or line diagrams in the original paper being reproduced in the abstract only if they are necessary in clarifying particular points.

Biological Abstracts :

1) Form letters with sample abstracts are furnished to the abstract writers, with special instructions for abstracting taxonomic papers.

2) The abstract should be an *informative summary* of the entire content of the article, not merely a description of the paper, not an abstract of selected parts.

3) It should not exceed 3 per cent of the length of the original ; usually a smaller percentage suffices.

4) Telegraphic style should be avoided.

5) The extent and source of materials, observations and results should be summarised.

6) Tables or graphs should not be used.

7) Anything new should be mentioned or described : "new apparatus, or new adaptation of apparatus (with name and address of its manufacturer) ; new techniques ; new parasitic or other economically important species, varieties of forms ; all new or verified constants and other critical data of permanent value, e.g. chromosome numbers, absorption spectra, formulae of new compounds ; and all important mathematical formulae simply expressed".

8) "Since proof cannot be supplied, the abstract should be critically checked — especially as to scientific names of organisms, technical terms, formulae, etc."

British Abstracts :

1) The length of the abstract usually left to the discretion of the abstractor — varying normally from a few words to 250 words (in unusual circumstances), and being related to the importance of the observations recorded in the original.

2) Abstracts from journals in languages not generally understood, or not readily available, should be more detailed.

3) The abstracts are *indicative* only and not intended as a substitute for reading the original paper for those interested.

4) Abstracts should be written in clear and grammatical English, and so as to be understood by others than narrow specialists in the field.

5) The abstracts should not be limited to reporting factual details, but should also refer to any generalizations that emerge ; the point of the paper should be stressed.

6) The importance of accuracy is stressed.

7) Abstracts should not be paragraphed.

Chemical Abstracts :

This service has very abundant and detailed instructions, among which the following :

1) Abstractors responsible for the covering of whole journals are requested to submit adequate abstracts of all the papers published therein which contain *new* information of *chemical* interest.

2) Good reviews should be reported briefly, particularly those accompanied by references, with the scope indicated whenever the title is not sufficiently explicit.

3) Anonymous articles or articles signed with only initials should rarely be abstracted.

4) General write-ups, such as chapters from books, should be passed by, but historical articles, containing information of economic interest to chemical

industry, and articles of biographical interest should be reported briefly (sometimes by title only).

5) "It is very important that abstracts should contain or make specific reference to all of the information in articles that is suitable for index entries. This would include every measurement, observation, method, apparatus, suggestion, and theory that is presented as new and of value in itself. All new compounds and all elements, compounds, and other substances for which new information is given should be entered in abstracts."

6) "Abstracts should begin with a statement of the author's purpose if this is not clearly apparent from the title."

7) "Abstracts should be informative rather than merely descriptive."

8) "More detailed abstracts should be prepared from the rare publications and from those in languages read by few Americans."

9) Complete, clear sentences in good idiomatic English should be used.

10) Abstracts should include C.A. references to significant earlier work, to methods mentioned and the like. Thorough correlation of abstracts is important.

Excerpta Medica :

1) If the article is informative : a careful summary should be made, stating the important features in concise and simple language. If the article is non-informative : indication of the title alone is sufficient.

2) The length of the abstract should be as brief as is consistent with a clear expression of the meaning.

3) Tables and chemical formulae are only used if absolutely necessary. Mention of important bibliography.

4) Abstracts are published under the name of the abstractor and his city of residence.

4. *Instructions given to abstractors whose working language is not English.*

Biological Abstracts : no special instructions. All titles in foreign language should be accompanied by an English translation.

Excerpta Medica : the abstractors are requested to send their abstracts in English if possible ; in their native language, if their English is not good ; in this case the abstracts are corrected or translated in the office.

British Abstracts : likewise, this service requests the abstractors to write in French, German, Italian and Spanish, if their English is poor ; in this case the abstract is then translated into English in the United Kingdom. In some instances the original and the translation are sent back to the foreign abstractor for checking : they can often check English, even if they cannot write it. Occasional serious misunderstandings are thus avoided.

Abstracts of World Medicine : this service, on the other hand, does not employ any abstractors unless they have a good working knowledge of English as well as of the language they are asked to translate.

Chemical Abstracts : similarly, they accept only abstracts written in English. "We have learned by experience", they write, "that an abstract cannot be translated exactly. Words usually have more than one meaning. Accordingly, if you were to ask me to give the English equivalent of a word such as 'Farbe' I would give you several answers. If you were to use the word in a sentence, I would have a better chance of knowing which meaning you might have in mind. If you were to use the word in an abstract, I would have a still

better chance to give you an exact translation, but for the exactness necessary in science, I would need to know the whole story to be sure".

Everyone seems to agree here on the difficulty of translating an abstract, but while some services definitely refuse to accept any abstracts which are not in English, others prefer them to abstracts written in poor English, and maintain a translating service.

5. *Abbreviations used :*

Abstracts of World Medicine : there is a list of abbrevations used for Journals. In the titles of abstracts, the name of the Journal is first given in full : this is followed by the abbreviation which follows closely that used in the *World List of Scientific Periodicals.*

There is a short list of abbreviations used in the text of abstracts. Chemical formulae are not to be used as abbreviations.

Biological Abstracts : the service has no compilation of the abbreviations used for bibliographical reference puposes. "A miniature file in the office contains, for each publication, the abbreviation that will be used in the citations. When a collaborator agrees to abstract a given journal, he is told what abbreviation to employ instead of the journal name. One of the members of the editorial organization is assigned to the task of editing citations with particular reference to seeing to it that the author's name, capitalization, use of the standard journal abbreviation, etc., are correctly entered."

In general, they employ for the respective journals abbreviations that are "full enough to enable any user of the *Biological Abstracts* to identify the journal, in its correct name, without having to consult the Reference Librarian of his local library. In other words, it is attempted to avoid abbreviations that are so abbreviated to be unintelligible except by the consultation of an abbreviation-list."

"The principal abbreviations employed in the text of the abstracts are listed on special forms. The editors are at liberty to abbreviate further if they will."

British Abstracts : has an official abbreviation list. They are aiming at reducing the use of abbreviations. Abstractors may coin new abbreviations if they give a key in the body of the abstract. Bibliographical abbreviations are mostly taken from the *World List.* For journals which have appeared since the publication of the *World List*, they use the B.M.A. abbreviations in the *World List* spirit. In some instances, tradition compels the use of private abbreviations.

Chemical Abstracts : there is a list of periodicals abstracted, with the corresponding abbreviations to be used. These abbreviations were made official for chemists throughout the world by the action of the International Union of Chemistry, and are well established as they are also used by many others.

The word abbreviations allowed in the abstracts are listed in the Directions.

Excerpta Medica : the choice of the abbreviations is left to the sub-editors. The policy is to use only those which the reader will have no difficulty in understanding.

They stress that it is impossible to follow a system suitable for all sections until an international agreement on abbreviations for medical abstracting is reached.

Summary :

The general policy concerning abbreviations is then to use only those abbreviations which are compatible with the intelligibility of the text, until some

international agreement has been reached, and therefore the use of abbreviations at present is not very great, not all uniform.

6. *Other editorial rules followed.*

These are miscellaneous rules.

Abstracts of World Medicine : all abstracts are signed by the abstractors who are usually specialists in the subject. The abstractor is requested to make any critical comment he likes, although the publication of such comments is at the discretion of the editor.

Biological Abstracts : publishes signed abstracts, with a brief indication of the abstractor's address. Abstracts prepared by members of the central editorial staff are published unsigned.

British Abstracts : abstracts are signed with the initials of the abstractor.

Chemical Abstracts : they have a system of office memoranda which go from time to time to members of the staff ; and for such operations as indexing they have extensive files of rules, etc., in card form. Both the memoranda and the cards are quite numerous and deal with such details as nomenclature instructions, rules for classifying abstracts, etc.

Excerpta Medica : the service does not abstract books (except doctor's theses), only journals and periodicals. No figures are published; tables are published only if they are indispensable to the understanding.

III. Summary.

To sum up the general situation, as it appears at present, there are several points of *difference* between the methods used by the various abstracting services :

1) In the instructions given to abstractors, some services ask for informative abstracts, others for indicative abstracts.

2) The length of the abstract is not agreed on.

3) Some services accept only abstracts written in English, while others accept abstracts written in other languages and maintain a translation service.

4) There is no uniformity in the abbreviations used for bibliographical reference purposes, nor in the body of the abstract, and no uniformity with regard to entries.

With regard to author's abstract, there is some divergence of opinion : the great majority of the services, however, condemn its use. Likewise, there is no absolute uniformity with regard to the scope of the literature to be covered by the services.

On the other hand, many principles are *common* to all services :

1) There seems to be general agreement on the most important criterion to be used for selecting a paper for abstracting ; and on the width of the fields covered.

2) Specific data are required.

3) Every service stresses the need for accuracy and for clearness of language.

4) The difficulty of translation is generally agreed upon.

5) It is also agreed that — until some international agreement is reached — abbreviations should be used only as long as they do not interfere with the intelligibility of the text.

6) All the services prefer tables and figures not to be included in the abstract.

ANNEX 5

COPYRIGHT PROBLEMS RAISED BY THE QUESTION OF "ABSTRACTS"

1. Too full an abstract requires the permission of the author (practical yardstick: an abstract full enough to make consultation and, a fortiori, purchase of the original work unnecessary).

2. A reasonable abstract (similar to press reviews) does not require the permission of the author (practical yardstick : an abstract bringing to notice the publication of the work, showing where it may be consulted or where the original text may be had, and giving a sketch of its contents and main conclusions).[1]

3. If it is necessary to include a *short* textual quotation, the permission of the author is unnecessary. If the quotation is *long* and concerned with an essential point, it is wiser to seek such permission.

4. In the case of an abstract for international circulation, it is advisable, where the author's permission is sought, to seek his permission at the same time for the translation of any quotations and to name the countries to which the abstract will be sent.

5. It is also advisable to reach an understanding under the terms of a "standard contract" (which might consist of an ordinary letter) of the position of the writer of the "abstract" on the following points :

surrender of rights in the text of the abstract ;
authority for translation and dissemination by all means in all specified countries ;
editorial fees ;
whether or not permissible for the writer of it to publish such abstract in whole, or in part, in a scientific review or publication either previous to its circulation, simultaneously therewith, or later.

Important note :
Whether or not the abstract is authorised by the author of the original work, it should make full and exact mention of the work dealt with, so that the reader can refer to such work and if desired, acquire it :

Name of author
Title of the work "abstracted"
Date of publication
Name and address of the publisher or of the review in which the abstract appeared.

François HEPP.
5 March 1948.

1. It is generally agreed that an abstract of a scientific work made on these lines should enable the reader to get a general idea of the originality of the author's research work, discovery or theory.

THE EXECUTIVE COMMITTEE

FIRST MEETING, 15 AND 16 OCTOBER 1948

Present :

Chairman : Dr. Hugh CLEGG, *British Medical Journal*, British Medical Association.

Members : Dr. G. M. FINDLAY, *Abstracts of World Medicine*, British Medical Assscіation.
Dr. N. HOWARD-JONES, World Health Organization.

Secretariat : Dr. I. ZHUKOVA, Natural Sciences Section.
Mr. J. B. REID, Natural Sciences Section.
Mr. E. J. CARTER, Head of Libraries.

Apologies were received from Dr. LAMPITT (Bureau of Abstracts) and Professor WOERDEMAN *(Excerpta Medica)*.

Dr. Findlay reported on the progress of collaboration by interchange of abstracts with *Excerpta Medica.*

Progress since the April meeting was then reviewed. The Resolutions (pp. 93-94) were taken *seriatim.* The more important points of the discussion are summarized below.

2) At its last meeting the Interim Commission of WHO had voted $6,000 to help the Interim Committee in 1949. With that and the help which was hoped for from the Unesco General Conference in Beirut, more active work might be undertaken in 1949.

Dr. Howard-Jones said the WHO allocation was based on the cost of WHO expert committees, assuming two meetings in 1949, and that the cost would be equally divided between Unesco, WHO and FAO.

3) Dr. Findlay announced the formation by the Royal Society of a new committee of the two Secretaries and the Treasurer of the Royal Society, Professor Bernal, Professor Munro Fox, Mr. Mallock, Sir David Chadwick and himself, to continue the work of the Royal Society Scientific Information Conference.

The preparation of a complete list of abstracting services was discussed and it was agreed that Unesco National Commissions should be asked for lists.

7) Dr. Zhukova said it would be very difficult to have all working papers translated into the five official languages of the United Nations. She suggested reconsideration if and when the Committee was enlarged to contain members speaking languages other than English and French. This was agreed.

8) Dr. Findlay reported the appearance of a new abstracting journal in the United Kingdom, which was not likely to be impressed with the resolution on duplication.

Dr. Howard-Jones said the resolution might affect official organizations but was unlikely to affect private enterprises. He suggested the insertion of "unnecessary" before "duplication". This was agreed.

Dr. Findlay read a recommendation from Working Party 2/a of the Royal Society Conference.

"Some overlapping between abstract services is desirable, when the services cater for readers having different interests. Such an overlap is distinct from duplication. For this reason, the universal use of a single set of abstracts produced by a central agency is undesirable."

Many medical journals had abstract sections which they would not be willing to sacrifice.

Dr. Howard-Jones said WHO might have to undertake the publication of bibliographical analyses previously produced by the Office International d'Hygiène Publique.

The Committee passed a resolution hoping that, before WHO undertook the abstracting of medical literature, the Committee would be consulted.

Later, the wording of the statement to be sent to the scientific and medical press was approved.

" Because of evidence of duplication of effort among certain abstracting services, an Interim Co-ordinating Committee on Medical and Biological Abstracting was set up in October 1947 by Unesco, and will now be jointly sponsored by the World Health Organization and Unesco.

Believing that its work should be continued, the Committee is inviting other non-profit-making organizations in the field of medical and biological abstracting to serve on it. When these invitations have been accepted, a full meeting of the Committee, which will then cease to be interim, will be held in Paris in the summer of 1949. Any organizations interested in this work should communicate with the Department of Natural Sciences, Unesco House, 19 avenue Kléber, Paris 16e."

13) After discussion the Committee recommended "that Unesco and WHO should consider jointly sponsoring the publication of a World List of Medico-Biological Periodicals with a standard abbreviation of their titles".

Proposals for a World List of abbreviations and symbols for scientific terms were again considered but the subject was left for further discussion at a Committee meeting.

With reference to the desire for contact with the U.S.S.R., it was agreed that "to make this Committee more representative, Biomedgiz be invited to send a delegate to the next meeting of this Committee". The invitation would be sent through the Director-General of Unesco to the Director-General of WHO for transmission.

Professor Justin-Besançon and Mme. Lwoff were present as guests and abstracting in France was discussed with them. They were asked to prepare for the Committee lists of French abstracting services.

Professor Auger reported on a plan proposed by Dr. Seidell, Honorary Consultant to the Army Medical Library, Washington, to have a world list of original papers prepared by amalgamation of lists collected on a regional basis. Professor Auger was asked to take the Committee's proposal for a World List of Journals in Medicine and Biology with him to a conference on this new proposal.

SECOND MEETING, 11 AND 12 FEBRUARY, 1949.

Present :

Chairman : Dr. Hugh CLEGG, *British Medical Journal*, British Medical Association.

Members : Dr. G. M. FINDLAY, *Abstracts of World Medicine*, British Medical Association.

Observers : Dr. N. HOWARD-JONES, World Health Organization.
Prof. F. VERZAR, Food and Agriculture Organization.

Secretariat : Dr. I. ZHUKOVA, Natural Sciences Section.
Mr. J. B. REID, Natural Sciences Section.

The publication of the proposed World List of Medical and Biological Journals was discussed with reference to the possible participation of Unesco, WHO and FAO and the hypothetical duties of the proposed Bureau of Scientific Abstracting. The Chairman thought Unesco should produce the List. Dr. Howard-Jones thought it unlikely that WHO would vote funds for a production to be published by another organization. The issue was left for decision by the June meeting of the Committee.

Mr. Reid reported that the Federation Internationale de Documentation (FID) was preparing a directory of abstracting services which should be ready by the end of the year and published in 1950. Dr. Holmstrom, of Imperial Chemical Industries Ltd., had been commissioned to prepare a note on existing multilingual dictionaries and to make suggestions regarding the most suitable form for such dictionaries, the branches of science where new dictionaries were required and the most suitable procedure for compiling them.

Plans for the June meeting were then discussed and a draft of the agenda was approved.

The plan adopted for the first day was as follows :

Opening address by the Director-General.
Statement by observer of WHO.
Statement by observer of FAO.
Address by the Director of the Natural Sciences Department (Professor Auger).
Election of Chairman, Vice-Chairman and Rapporteur.
Report by the Chairman of the Interim Co-ordinating Committee on Medical and Biological Abstracting (Dr. Clegg).
General discussions on the Chairman's Report.

It was further agreed that members of the Committee should be invited to read papers to cover the more important aspects of abstracting. The following proposals were accepted.

"Shortcomings of abstracting services from the point of view of the consumer and the librarian", Mrs. Cunningham to speak for the librarian and Professor Lépine for the consumer.
"Abstracting from the point of view of the abstractor", Dr. Findlay.
"Co-ordination of work between abstracting services", Professor Woerdeman, Professor Justin-Besançon to be asked to open the discussion and Dr. Flynn to follow.
"Arrangement of bibliographical detail in abstracting journals", Dr. Leitch.
"Abbreviations, contractions and symbols used in the medico-biological sciences", Mrs. Lwoff. Dr. Crane to open the discussion.

"An abstracting organization as an information service", Dr. Wilcocks.

It was announced that *Excerpta Medica* had been established as a foundation, with the co-operation of the American Medical Association, Dr. Morris Fishbein to represent that Association on the Editorial Board ; and that subscribers had been notified to that effect.

The Chairman then asked whether the Committee was to continue in being after the June meeting. If so, it must have a clearly defined purpose. Dr. Zhukova and Mr. Reid thought there was so much work to do that continuation of the Committee was essential. Its representation at the general Conference on Science Abstracting and its possible relationship to a general committee, if one were set up by that conference, were left for consideration at the Committee meeting.

THIRD MEETING, 31 MAY 1949

Present :

Chairman : Dr. Hugh CLEGG, *British Medical Journal*, British Medical Association.

Members : Dr. G. M. FINDLAY, *Abstracts of World Medicine*, British Medical Association.
Professor M. W. WOERDEMAN, *Excerpta Medica* (Netherlands).
Mrs. E. R. CUNNINGHAM, Medical Library Association (U.S.A.).

Secretariat : Dr. I. ZHUKOVA, Natural Sciences Section.
Mr. J. B. REID, Natural Sciences Section.

Professor Woerdeman reported that a contract had been made with the publishers of *Excerpta Medica* to the effect that royalties or profits, if any, above a certain percentage, should be used to reduce selling price. The American Medical Association had no financial interest.

Mr. Reid said that Dr. Holmstrom's report was expected at once. Two new medical dictionaries were about to appear, one by Professor Lépine and one published in Switzerland.

Dr. Zhukova reported that no reply had been received about the need for services in Spanish in Latin America but a " consumer ", Professor Talice from Montevideo, would attend the meeting ; Dr. Julius Springer had been invited to attend as an observer but had declined.

The Chairman referred again to the continuance of the Committee and was of the opinion that, if it persisted either independently or as part of a new body, the word Interim should be dropped from the title.

THE PERMANENT COMMITTEE

UNESCO HOUSE, 1 TO 4 JUNE, 1949

Present :

Acting Chairman :	Dr. H. CLEGG, *British Medical Journal*, British Medical Association (United Kingdom).
Vice-Chairman :	Mrs. E. R. CUNNINGHAM, Medical Library Association (U.S.A.). Prof. L. JUSTIN-BESANÇON, Association de l'Enseignement medical des Hôpitaux (France). Prof. M. W. WOERDEMAN, *Excerpta Medica* (Netherlands).
Rapporteur :	Dr. G. M. FINDLAY, *Abstracts of World Medicine*, British Medical Association (United Kingdom).
Members :	Dr. E. J. CRANE, *Chemical Abstracts* (U.S.A.). Dr. J. E. FLYNN, *Biological Abstracts* (U.S.A.). Sir Herbert HOWARD, Commonwealth Agricultural Bureaux. Dr. L. LAMPITT, *British Abstracts* (United Kingdom). Dr. I. LEITCH, Commonwealth Bureau of Animal Nutrition. Mrs. M. LWOFF, *Bulletin de l'Institut Pasteur* (France). Dr. H. R. VIETS, American Medical Association (U.S.A.). Dr. C. WILCOCKS, Bureau of Hygiene and Tropical Diseases (United Kingdom).
FAO representative :	Prof. F. VERZAR, University of Basle.
WHO representative :	Dr. N. HOWARD-JONES, Director, Division of Editorial and Reference Services.
Observers :	Dr. A CLEMENTE, National Research Council of the Philippines and University of the Philippines. Mrs. G. DUPRAT, Natural History Museum (France). Mr. H. IZANT, World Health Organization. Dr. S. V. LARKEY, Welch Medical Library, representing the Army Medical Library (U.S.A.). Prof. P. LÉPINE, Institut Pasteur (France). Prof. R. V. TALICE, Faculty of Medicine, University of Montevideo (Uruguay). Dr. A. HAHN, International Federation of Library Associations
Unesco Secretariat :	Mr. Jaime TORRES BODET, Director-General. Prof. P. AUGER, Natural Sciences Section. Dr. I. M. ZHUKOVA, Natural Sciences Section.

Mr. J. B. REID, Natural Sciences Section.
Dr. Th. GRIVET, Natural Sciences Section.
Mr. E. J. CARTER, Libraries Section.

Inaugural address by the Director-General of Unesco.

Gentlemen,

I am happy to welcome you to Unesco House where you meet for the second time as an Interim Committee for the Co-ordination of Medical and Biological Abstracting.

" Abstracts ", as the subjects of your labours are called, are none the less most substantial products. Under the austere cover of these abstracts, under the initials of your abbreviations, there is hidden a most useful mental effort. Who among us, in his own speciality, has not hoped for quick, comprehensive, honest guidance on the literature relating to his study ? Since the second world war, especially, when communications between most of Europe and other continents had been interrupted for nearly five years, a great need was felt for information on the work that had been done. It is not that praiseworthy efforts had not been made before ; international co-operation did exist in your sphere. But, with the end of hostilities, the need and the great urgency for it imposed duties, insistent and more extensive than ever before. Unesco began work at once although it was still only a preparatory commission. Since then, for more than three years, it has constantly had in view the encouragement and co-ordination of abstracting services, especially in medicine and biology.

Unesco has helped to ease the task of doctors, surgeons and biologists. By putting in to the hands of all the experts a list of the publications of each, it has helped the scientists. It has worked for the progress of science by economising effort. The completion of one investigation leaves experts free for other tasks, provided they know it has been completed. It is for you to let them know. When it is a question of sciences that subserve life and health, to encourage them is to contribute directly to human well-being. I do not think I exaggerate the importance of your work, Gentlemen, when I say that they are important not only for the experts for whom they are primarily intended, but also for the most humble among us. It is in this double role, scientific and humanitarian, that you must see Unesco, happy and proud from the beginning to attain some of its own aims by associating itself with your efforts. What you have already accomplished is not negligible, if only to point the way for further progress. The first apparent advantage of collecting together experts from different countries is that they search together for solutions to their common problems ; they avoid the conflicts that might arise between different publications. Further, since your Committee has decided to admit only non-profit-making organizations, some who wished to be considered as such have had to reduce the price of their services and the whole scientific world has reaped the benefit. A new and closer co-operation has been established between several producers. One of the aims of your Committee being to avoid duplication of effort, you have expressed the wish that " if the World Health Organization undertakes the production of medical abstracts, it will take no step without first submitting its plan to the Interim Co-ordinating Committee ". We are glad to know that the World Health Organization has agreed to your request.

But these first successes, attained through patience and method, have done no more than show the way. To support and co-ordinate, that is good but now you must go forward to more effective co-operation. Your Committee will

cease to be an interim committee and become a permanent body with many new members. For this reason, you will play an important role at the International Conference on Scientific Abstracting which will take place at Unesco House from the 20th to the 25th June next. You will there represent, not only the section of medical and biological sciences, but a group already organized which may serve as an example for the larger enterprise contemplated by the International Conference. If, as we hope, the Conference decides to establish an International Bureau for the Co-ordination of Scientific Abstracting, I have every reason to believe that your Committee will take an active part ; sure of its efficiency within the limits of its own work, it will be ready to go beyond that specialized sphere to help solve problems common to all branches of knowledge.

These wider prospects do not make us forget the immediate tasks of your second session, like the decision to prepare a list of medical and biological periodicals of the world ; the standardization of nomenclatures, of abbreviations, of symbols ; the partition of the work so that nothing in medical and biological literature will escape you. I am aware of the difficulties inherent in these aims which may be so simply described. Legitimate needs frequently involve serious contradictions. Abstracts are required to be very short but at the same time to give a complete picture of a piece of work ; to appear very quickly but to be arranged in congruent groups ; with abbreviations, but clear to everyone ; in an impersonal and objective style, but calculated to arouse interest ; covering the whole of medical and biological science, but selective, that is ignoring papers of no value ; classified under headings so as to facilitate reference, but without greatly increasing the weight or the price of the journals. What problems are raised of objective and subjective judgments in the choice of papers for abstracting, in the editing of the abstracts, in the principles of classification, in the building up of a polyglot scientific vocabulary !

Here you see, Gentlemen, that the organization of science, to which you have dedicated your work, requires more than science. You must bring to this task not only the most expert knowledge of the problems but also the spirit of conciliation and tolerance. For the work will not come to any conclusion, and still less will it serve the well-being and freedom of man, if it is not inspired with that wisdom during its growth. You will succeed, Gentlemen, I am sure of it, in getting over the difficulties of your task and so you will contribute to the progress of science and of international understanding.

Address by the Head of the Natural Sciences Section.

Professor P. Auger said that the pioneering work accomplished by the Committee must be continued, and must be extended to other branches of science where the same problems arose as in the medical and biological sciences. Scientific literature as a whole consisted of between one and two million articles annually, appearing in fifty thousand separate periodicals. Gutenberg could never have foreseen such consequences from his invention.

A permanent body, however small, should be set up to cover all branches of science abstracting. The Committee would be strongly represented at the General Conference, which would be greatly influenced by the Committee's present work. The upshot might be a kind of permanent Secretariat of two or three people. In addition the Conference might appoint an Executive Committee to which individual committees would each nominate two or three members. Meetings of such an Executive Committee could be fairly frequent. Following the example of the Interim Co-ordinating Committee on Medical and Biological

Abstracting, by then become permanent, a committee could be formed for the mathematical, and another for the physical, sciences.

Unesco did not seek to influence the work of the Committee or of the General Conference on Science Abstracting, but did wish to make available to them certain basic data, in conformity with a motto he might suggest : "Serve, and perhaps guide."

Statement by the Representative for WHO

Dr. N. Howard-Jones said that the World Health Organization was not an abstracting service but did publish, in at least two languages, numerous documents relating to medical science and allied questions.

His Organization was therefore greatly interested in the establishment of standardized terminology. Two of its publications which had a special interest in terminology were the *International Pharmacopoeia* and the *Manual of the International Statistical Classification of Injuries, Diseases and Causes of Death.*

The World Health Organization applauded Unesco's initiative in this co-ordination of abstracting and would be happy to play its part.

Statement by the Representative for FAO

Professor F. Verzar said FAO was glad and appreciative of the chance to associate itself with Unesco's enterprise.

After the election of office bearers, Dr. H. Clegg as Chairman, Mrs. Cunningham, Professor Woerdeman and Professor Justin-Besançon as Vice-Chairmen and Dr. Findlay as Rapporteur, the Chairman read his report.

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SURVEY OF THE WORK OF THE INTERIM COMMITTEE

by Dr. Hugh Clegg.

The meeting in Paris this week is an end-point to a number of conversations, committee meetings, and conferences, on medical and biological abstracting that have been going on since 1946. It was thought it might be useful if I were to summarize these discussions so that those attending for the first time may form some idea of what has so far been attempted.

The origin of this Committee on Abstracting will, I hope, explain why representatives of many important abstracting agencies have come into these discussions for the first time this week. Some of you may think that you should have joined us at an earlier date. But like so many other things, this affair had small beginnings, and as we proceeded in our deliberations it became clear to Unesco that these small beginnings were promising enough to justify further exploration and expansion. We did at one time feel that we should run the risk of talking at large about a number of interesting topics without any resulting action. But as Dr. Joseph Needham observed on one occasion, the fact that a few people from a few countries were meeting to discuss common problems was an action desirable in itself. And this week a number of distinguished workers have kindly agreed to review in perhaps a more concise way some of the topics which we have touched on during the past three years. There is clearly still room for more talk; in fact it is interesting to observe how many different opinions there may be on this apparently humdrum subject of abstracting. Yet the time must come when sensory impulses should be translated into effective motor action, and I hope that by the end of this meeting we may be able to put for the consideration of Unesco projects that will be of practical use to existing abstracting agencies.

Towards the end of the war the British Medical Association, acting on the advice of various groups interested in abstracting, decided to start a medical abstracting service as soon as conditions made this possible. The extent and scope of this service had to be limited by material factors such as the supply of paper, finance, and the capacity of printers to do the work, many printing firms having been destroyed in air raids. When we were about to start this service we learned that a group of scientists in Amsterdam were working on the same idea, and, moreover, had decided to publish a number of abstracting journals in the English language, a linguistic compliment which we in Great Britain much appreciated. Nevertheless, we thought it would be unfortunate if this work of abstracting was to be duplicated, and if wasteful competition should arise in what was strictly an academic field. We therefore sought the advice of Unesco, then the infant prodigy of United Nations. In December 1946 Unesco arranged a meeting in Paris between representatives of *Excerpta Medica* and Dr. Findlay and myself as representing *Abstracts of World Medicine* and the *British Medical Journal*. This meeting was the small beginning of the Conference meeting today, and I should like here to pay tribute to Unesco, and particularly

to Dr. Zhukova, for the skilful and diplomatic way in which we have been steered out of what was local and personal to a broader conception of the urgent need for the world of science and medicine of that essential instrument of knowledge for the pure and applied scientist, the abstract.

The meeting in December 1946 was followed by a meeting in July 1947 between representatives of *Excerpta Medica*, *British Abstracts*, and *Abstracts of World Medicine*. Then a conference was held by Unesco in Paris, in October 1947, when the above groups were joined by Dr. Flynn, Editor-in-Chief of *Biological Abstracts* published in Philadelphia, and Dr. Eileen Cunningham, who attended on behalf of the Medical Library Association of the U.S.A. The World Health Organization showed its interest in this work by sending Mr. Deutschmann as observer. At this conference Dr. Julian Huxley, as Director-General of Unesco, stressed the need for the unification of abstracting in all fields of learning, and Dr. Joseph Needham, who preceded Professor Auger as Director of the Natural Sciences Division, referred to the unification of abstracting in the medical and biological sciences as, to quote his words, "one aspect of the general rationalization of scientific publications on a world-wide scale".

The October conference had before it a letter from the National Research Council, Washington, and was much encouraged by this to apply itself to its self-imposed task. The National Research Council considered that Unesco had, to use its words, "a unique opportunity to perform a useful function in the international aspects of science by assisting biological and medical abstracting services to accomplish :

a) full coverage in biology and medicine ;

b) elimination of wasteful duplication ; and

c) publication at reasonable prices".

The N.R.C. thought that these objectives could be reached by non-profit-making enterprises. I should add here that this was a conclusion already reached in our preliminary discussions, and that when this was put to the representatives of *Excerpta Medica* they agreed to take steps to put their venture on a non-profit basis. This they have now done. The National Research Council drew attention to existing duplication of abstracting, suggested that Unesco could obtain co-operation impossible for other agencies to achieve, and stated that the two principal objectives of abstracting services should be complete coverage and low price. It added : "It should also be noted that promptness of abstracting publication and extensive indexing are also important qualities of a good abstracting system".

The Unesco Conference of October 1947 was informed of the aim and scope of those agencies represented. Briefly, *Biological Abstracts*, formed as a result of the amalgamation in 1926 of *Bacteriological Abstracts* and *Botanical Abstracts*, aims at abstracting every research paper in the whole field of biological and experimental medicine. It was in 1947 covering about 2,650 journals, had 4,400 abstractors on its active list representing every nation in the world, and had most of its abstracting done on a voluntary basis. This service favoured the use of authors' abstracts. *British Abstracts*, the result of the amalgamation in 1938 of *Chemical Abstracts* and *Physiological Abstracts*, provides a service for the scientist in biological and medical sciences and for the chemist interested in both chemistry and biology. Its abstracts are indicative and not informative, to use terms now generally accepted, and it relies upon editors in different countries to abstract articles from national journals. *Excerpta Medica* aims at comprehensiveness through its numerous abstracting sections, but does not attempt complete coverage. *World Abstracts* provides a selection of informative abstracts for the practising physician and surgeon. The two latter agencies abstract articles from some 2,000 medical and biological periodicals.

The discussion at this conference ranged over a number of subjects and we spent some time in trying to define terms. A number of resolutions were passed, some of the more important of which are now listed :

1) It is desirable, on a co-operative basis, to provide a scientific medical information service by means of abstracting current publications at the lowest possible cost to the consumer.

2) The co-operation of abstracting services should be estimated on the fact that they are on a non-profit-making basis.

3) An abstract should give enough information to the reader to enable him to decide whether he should consult the original article abstracted and it should include the principal data of the article ; in addition, abstracts should be prepared to the special requirements of the reader.

4) The duplication of specialist abstracting journals is undesirable.

5) A comprehensive abstracting service, in the sense of abstracting all articles of all journals, is impossible and undesirable.

A medical abstracting service should be comprehensive in the sense that it surveys the whole of world medical literature and that it includes a survey of all the literature of those sciences having a bearing on medicine ; and

An attempt should be made to secure the co-operation of abstracting services of non-medical sciences in indicating to the medical services articles of possible medical interest.

6) Unesco is asked to enquire into the demands for abstracting services in other languages than English, and into existing facilities for translation.

7) Unesco is asked to promote the preparation and publication of comprehensive multilingual dictionaries of the biological and medical sciences.

8) Recognizing the great services the *Index Catalogue* of the Surgeon-General's Library and the *Quarterly Cumulative Index Medicus* have contributed to medical science, the Conference nevertheless would welcome any step towards the amalgamation of these services so that the information they provide may be even more complete and be made available more quickly to readers.

9) The Conference, as a result of wide discussion during two days of the various problems of medical abstracts on an international basis, was impressed by the prospect that such activity would conduce to world peace and understanding by the dissemination of information among professional groups in the various countries of the world.

The services represented at the Conference were asked to consider omitting from their publications sections already provided by other services. For example, it was suggested that *Excerpta Medica* should discontinue some of its special sections already catered for in the publications of *Biological Abstracts* and *British Abstracts*. They were also asked to explore the possibility of collaboration by the exchange of abstracts and it was agreed that a small-scale experiment on these lines should be conducted by *Excerpta Medica* and *World Abstracts*. The Conference referred several times to the problem of language and translations. As one attempt to meet this problem it suggested that Unesco should look into the question of the publication of a multilingual glossary. The Conference ended on an optimistic note and considered it had made enough progress to justify asking Unesco to put the matter on a more formal footing by the establishment of an Interim Committee on Abstracting in the Medical and Biological Sciences.

The first meeting of the Interim Co-ordinating Committee was held in April 1948 and received replies from the above agencies and *Chemical Abstracts* to a short questionary sent to them by Unesco. Briefly, these were the points made :

1) No service attempts to abstract all papers ;

2) The criterion for selecting a paper for abstracting is originality of content ;

3) Papers on the borderline sciences should be covered ;

4) Selection is more or less at the discretion of the abstractor, guided by the editor of the abstracting journal ;

5) Only *Biological Abstracts* favoured the use of authors' abstracts ;

6) Each agency used its own abbreviations for titles of journals.

The abstracting services were also asked to inform the Committee of the instructions they gave to abstractors. As *Chemical Abstracts* seems to give the most thorough instructions I give below those it submitted to the Committee :

1) Abstractors responsible for the covering of whole journals are requested to submit adequate abstracts of all the papers published therein which contain *new* information of *chemical* interest.

2) Good reviews should be reported briefly, particularly those accompanied by references, with the scope indicated whenever the title is not sufficiently explicit.

3) Anonymous articles or articles signed with only initials should rarely be abstracted.

4) General write-ups, such as chapters from books, should be passed by, but historical articles, articles containing information of economic interest to chemical industry, and articles of biographical interest should be reported briefly (sometimes by title only).

5) It is very important that abstracts should contain or make specific reference to all of the information in articles that is suitable for index entries. This would include every measurement, observation, method, apparatus, suggestion, and theory that is presented as new and of value in itself. All new compounds and all elements, compounds, and other substances for which new information is given should be entered in abstracts.

6) Abstracts should begin with a statement of the author's purpose if this is not clearly apparent from the title.

7) Abstracts should be informative rather than merely descriptive.

8) More detailed abstracts should be prepared from the rare publications and from those in languages read by few Americans.

9) Complete, clear sentences in good idiomatic English should be used.

10) Abstracts should include C.A. references to significant earlier work, to methods mentioned and the like. Thorough correlation of abstracts is important.

The Interim Committee had the opportunity of receiving expert advice from the International Federation for Documentation and on international copyright law. It again spent some time in discussing such details as the arrangement of the bibliographical entry, the use and misuse of international and national abbreviations and symbols, and the method of abbreviating the titles of periodicals. The Committee heard from those present the results of the collaboration between the various agencies that had been agreed on at the previous conference, and was disappointed that so little progress had been made. The first flush of optimism had, in fact, faded, and on the second day of the meeting the chairman suggested that the Committee should ask itself whether it was in fact making any progress. He thought they should try to define their aims more exactly in order to be able to arrive at concrete results, thus echoing an opinion expressed by Dr. Flynn, who, in a letter to Dr. E.G. Butler, of the Department of Biology, Princetown University, wrote : "It is time to advance our thinking somewhat beyond the generalities".

In Dr. Flynn's view the existing abstracting services should continue much as they are now, but attempt to correlate their work in order to eliminate

duplication and waste of time and effort. The opposite point of view was expressed by Mrs. Eileen Cunningham, who, having received the opinions of many scientists in the U.S.A., was in favour of setting up an international abstracting service for biology and medicine. The Committee, however, felt that if anything practical was to be done it would not be profitable at this stage to consider elaborate and ambitious schemes of this sort. It thought it would be much better to undertake a few simple tasks and to try to get the agreement of abstracting agencies on the standardization of some of the details of abstracting. But agreement on even relatively simple matters is not easy to reach. For example, the Committee considered the question of the method of abbreviation of journal titles and it passed a resolution by five votes to two in favour of adopting the method used by the *World List of Scientific Periodicals*, published by the Oxford University Press. If there is to be international collaboration in the field of abstracting and, for example, the exchange of abstracts between different countries, agreement on this relatively small detail will be important. If agreement is not reached the result will be much waste of editorial time and effort. Similarly, time and effort will be wasted if the several agencies fail to agree on a uniform method of arranging the bibliographical entry to an abstract.

If we accept the view that Mrs. Cunningham's idea of one international abstracting agency is unlikely to be realized in the lives of most of us, then we must try to make international collaboration between services a working possibility. Unless we can secure agreement on the small things it would seem to me that we shall not progress very far.

The Committee in April last year decided to ask the World Health Organization and the Food and Agriculture Organization to join Unesco in sponsoring its activities. It decided, too, to invite other non-profit-making abstracting agencies to take part in its work, and if these agencies accepted the invitation, to drop the word 'Interim' from its title. This is the first meeting of the full Committee.

The April Committee passed a number of resolutions, some of general, and some of more detailed character. For example, Unesco was asked to request the National Commissions to review their national nomenclatures in the medical and biological sciences in relation to accepted international standards ; it decided to ask certain publications to give publicity to the resolution of the Committee that the duplication of specialist abstracting journals was undesirable ; it asked Unesco to look into the question of publishing polyglot glossaries of the medical and biological sciences ; it recommended the adoption of the periodical abbreviations given in the *World List of Scientific Periodicals* ; it recommended that abbreviations and symbols not recognized internationally should be avoided in abstracting journals unless defined at first mention or unless a key was provided in the journal itself ; it recommended that the metric equivalent of all non-metric measures should be given in parenthesis ; and it recommended that the nomenclature of Bergey's *Determinative Bacteriology* should be universally adopted. The Interim Committee also set up a small Executive Committee to carry on the work in the meanwhile and it has held two meetings. Unfortunately at neither of these two meetings of the Executive Committee were *Excerpta Medica* and *British Abstracts* able to send representatives. The Executive Committee, in fact, consisted, in addition to the Unesco Secretariat, of one chairman, one member, and one observer, each of them natives of Great Britain. In spite of this intellectual and geographical handicap the "native hue of resolution" was not "o'ercast" and the Executive Committee with the warm co-operation of Unesco worked out the plans for the present conference.

This survey is already long enough, but even then much has had to be omitted

from it. I feel that this meeting is the end of the beginning, and the beginning, I hope, of a real effort to make practical collaboration possible between non-profit-making abstracting agencies in different countries. I should like to suggest that by the end of this week we may be able to reach agreement on certain practical details and to be in a position to ask Unesco to provide some simple instruments that can be used by all abstracting agencies. Those that seem to be feasible are :

1) a polyglot glossary for the medical and biological sciences ;

2) the publication of a list of existing medico-biological journals with abbreviations of their titles ;

3) the publication of a handbook of internationally accepted abbreviations and symbols.

We are all interested in the fate of Unesco or we should not be here. We all know, too, that it has come in for criticism, most of it unfair, for the launching of ambitious schemes incapable of fulfilment. If our group can collaborate with Unesco in publishing handbooks useful to abstracting agencies and abstractors on some such lines as suggested above, we shall, I think, in our own small way do something to meet the demand of the world's taxpayers for concrete results.

Professor Justin-Besançon appreciated the constructive nature of the chairman's report and wished a decision to be made regarding the compilation of :

1) a polyglot lexicon of medical and biological terms,

2) a list of current medical and biological periodicals showing abbreviated titles,

3) an agreed list of abbreviations and symbols for scientific terms for use throughout the world.

He moved that a resolution to proceed with these should be passed forthwith so that the Committee could begin work with something constructive.

Professor Auger suggested amplifying the list of periodicals by indicating which abstracting services dealt regularly with each.

Professor Lépine supported the motion but said that, in his view, Bergey's *Determinative Bacteriology* could not be adopted without reservations (see p. 29) and that perhaps Unesco, before undertaking a lexicon of its own, might inform itself of work already in progress.

Sir Herbert Howard thought it would be difficult to indicate all journals publishing abstracts ; the regular services could be indicated.

The Chairman suggested that what users wanted most was to know in what libraries the originals could be found. Professor Auger said that abstracts would enable users to decide whether they required to consult a particular original paper. The system he had proposed would not be perfect but it would help.

In further discussion the question of overlap with the *World List of Scientific Periodicals* and the *Union List of Serials* was raised. The Chairman said a special list for Medicine and Biology was needed because the *World List* covered all science and was so unwieldy. Mr. Reid added that the existing Lists indicated only libraries in the countries of origin and Unesco could approve a scheme only if all countries were similarly treated.

Dr. Wilcocks doubted the need to include indications of abstracting services and, in reply, it was made clear that only the major services, as distinct from all journals publishing some abstracts, were in mind. Symbols could be used. The number of even the more important libraries in the world made the task of including libraries impossible.

The Chairman said the compiling of a list of journals with symbols could not be very difficult since each service must have its own list and keep it up to date.

It was agreed that a list of periodicals for Medicine and Biology should be prepared and the discussion on ways and means continued. The following points were made on general structure : the list should be kept up to date by six-monthly or yearly supplements and revisions ; only abstracting services with world coverage should be indicated ; symbols for such services should be used ; these indications would be extremely useful to librarians ; the list would be more useful to librarians if the names of the publishers and the prices of the publications were included.

On how to compile the list, Mr. Reid suggested the best way would be to ask all the abstracting services to be included for a list of the periodicals received and/or abstracted. These would give a combined list including only journals important enough to abstract. The symbols for abstracting services after the name of a journal would indicate the breadth of its field of interest.

Later, the Chairman proposed the following amendment to the second part of Professor Justin-Besançon's resolution :

"In the published list of medical and biological journals and their abbreviations, there should be added symbols opposite each title to indicate the agencies which abstract the journals listed."

It was adopted by 8 votes to 5.

Dr. Findlay asked whether Unesco would bear the expense of preparing the list and Professor Auger replied that if Unesco were asked to provide for the work it would ask the General Conference for the necessary funds.

The question of including a list of libraries where the journals listed could be consulted was rejected on the grounds that the task was impossible (for instance, the *Annales de l'Institut Pasteur* was sent to 1,000 libraries) ; that it would be misleading, even if possible, because not all journals received were kept or kept intact, and many sets were incomplete ; and that in course of time national centres for bibliographical information would be able to supply the information as required.

CO-ORDINATION OF THE WORK OF ABSTRACTING SERVICES

by Professor M. W. WOERDEMAN.

When we see how many abstracting services exist the question arises whether co-ordination of the work is possible. In the field of medicine, for example, there are different kinds of abstracting services :

1) Many medical journals contain abstracts of articles published in a limited number of the more important journals ;

2) There are abstracting services publishing abstracts from a limited field of medicine, such as surgery, obstetrics or ophthalmology ;

3) Some publish abstracts of articles dealing with one disease only, such as tuberculosis, or cancer ;

4) There are abstracting services for the general physician and for the specialist. Some services do not provide abstracts. They provide digests of the literature of special subjects, published within a certain period, for instance medical digests, yearbooks, reviews and reports on the progress of certain branches of medicine.

Among the real abstracting services we must distinguish between the selective and those which try to give as complete a survey as possible of the world's literature.

Some give very short, indicative, abstracts, others are informative. When we realize that in addition to abstracting services in several languages, there are also indexes and catalogues of medical literature which do not contain abstracts but only lists of titles, and that similar lists, mostly incomplete, are published also in many medical journals, then we see that there is great lack of co-ordination of information about medical literature. We must ask ourselves if something can be done to improve this situation and if so, what.

Although there is not such a diversity of services in the field of natural sciences as in medicine I am convinced that there, too, much duplication exists. The services for different subjects overlap each other and that is true also for the borderline fields between medicine and some of the natural sciences, e.g. chemistry and biology.

The question arises, of course, whether all those abstracting services are really necessary. What some readers require of an abstracting service will not do for all. An abstracting service catering for specialists will produce a different type of abstract of a given article from that of a service catering for a wider circle of readers. A radiologist will be interested in details of an article on the physics of radiation other than those with which a physicist will be chiefly concerned. In general a theoretical scientist is interested in details that do not concern a general practitioner.

I do not think that a solution of the problem is to be found in the suggestion put forward by Dr. Lampitt in paper No.10 of the Scientific Information Conference, organized in London in 1948 by the Royal Society. According to this suggestion the abstractors of a central abstracting organization would prepare

two abstracts of an article. The first, an "indicative" one, would go forward for publication in the usual way; the second, an "informative" one, would go to particular sectional interests for special consideration. It might have to go to two or more services. My objection is that if an informative abstract is to be fit for use by more than one interest, it will have to be very extensive and cannot be published in this extensive form. Abstracting services must see that the reader does not lose too much time sifting the abstract to find the items of special interest to him. The sifting should be done by the editorial staff of the abstracting services which receive such informative abstracts. But then I am afraid that too much will be demanded of the abstract writer if we presume that he could write abstracts which would contain all items of interest for two or more groups of readers. In my opinion the best policy is to have abstracts prepared by abstract writers belonging to the group for which the abstract is destined, surgeons for a paper on surgery, gynaecologists for a gynaecological paper, and so on.

The progressive specialization of science and the resultant narrowing of interest within the several groups of scientists explain why the requirements of groups of readers differ so greatly. It will not be possible to satisfy the very divergent interests of all of these groups by one single abstracting service for each branch of science. We must reconcile ourselves to the need for more than one abstracting service for each branch of science and for more than one abstract of most of the articles, each of them adapted to the needs and interests of a group of readers. This holds good especially for articles in the borderline field between physics, chemistry, biology and medicine. "Any attempt to centralise abstracting work would lead to abstracts the approach of which disregards special points of view. Some overlapping of the fields of interest of different abstracting organizations should, therefore, not be considered a bad thing in itself, as it enables different points of view to be catered for." (Paper No.4 of the Scientific Information Conference.)

Admitting the desirability of different abstracting services for one subject I am yet of the opinion that some of the existing abstracting services are not really necessary in their present form and organization. Medical journals, for example, that publish some extracts to keep their readers informed of the contents of a small number of the more important medical journals, should give up this practice and leave abstracting to the abstracting services. If they believe that their readers cannot do without these abstracts, they should make contracts with the abstracting services for reprinting abstracts on their special subjects. Although such co-operation would not eliminate overlapping in publication, it would at least avoid duplication of work. In 1931 at an informal conference, convened by Sir Henry T. Tizard to review some of the problems of abstracting, some 40 abstracting agencies were represented. A committee was appointed to report on an inquiry. "Mutual assistance without interference" seems to have been generally acceptable as a goal, indicating the inclination to preserve vested interests. I think that a similar enquiry would yield a similar result at this moment and that the conclusion of the committee that overlapping in publication seems to be unavoidable, is still valid.

Yet I think that we should avoid this overlapping wherever possible. If two closely related abstracting services, e.g. in biology and human anatomy, chemistry and biochemistry, would agree on the subjects or the journals which each of them should abstract as completely as possible, and if each would permit the other to reprint abstracts which are of importance to both, this would be an advantage to all. Otherwise some scientists, interested in borderline problems, will have to subscribe to both services.

In general, I think, co-ordination of the work of abstracting services should aim at avoiding overlapping in the preparation, rather than in the publication, of abstracts. On account of the different requirements of different groups of readers, I see quite well that such overlapping can be only partially avoided. Let us then examine what can be done.

One of the proposals often made is the exchange of abstracts by two or more abstracting services. Although in certain cases such an exchange may have advantages, it does not suit the purpose in general and can be helpful only on a small scale.

A much more promising form of co-operation and co-ordination of work could be attained if a group of abstracting services would organize on joint account, correspondence offices in foreign countries with less well know languages, both for the preparation of abstracts and for their translation. Another useful co-ordination would be the establishment of a common translation office and an exchange office for photocopies.

Then abstracting services should consider joint agreements on :

a) A guide and rules for abstractors ;

b) Uniformity in the form of abstracts ;

c) Uniformity in nomenclature ;

d) Uniformity in abbreviations ;

e) Uniformity in classification and indexing.

They should also jointly take steps to avoid the difficulties arising from copyright laws. Consideration should be given to the possible co-operation of some abstracting services by pooling their material in order to publish, on joint account, lists of papers on special borderline subjects, reports on the progress of research in certain borderline fields of science, and so on.

Finally, there are still subjects which are inadequately covered by the existing abstracting services. Some of them in co-operation might possibly be able to fill such gaps.

I am aware that I have given only some general ideas to serve as an introduction to the discussion. I will finish by expressing the hope that other ideas will be brought forward and that abstracting services may profit thereby.

Professor Justin-Besançon, realized there were many services providing abstracting services and recognized that the reader's needs must be considered. A lecture required three things : a lecturer, a subject, and at least one listener. The best abstract would be useless without a reader and in the medical field it would be considered to have failed in its aim if it did not have at least a thousand readers. He agreed that more than one abstracting service might be needed in one branch of science ; the needs of both medical scientists and practising physicians must be considered. Professor Woerdeman had drawn the logical conclusion. But time and money could be saved by avoiding overlap in the preparation of abstracts. Economy of time was particularly important in medicine and public health where the rapid dissemination of discoveries to practising physicians could save lives. Doctors must be educated to read abstracts. The number of readers of the *Semaine des Hôpitaux*, which contained a bibliography similar to the *Current List*, had grown rapidly.

Dr. Flynn quoted the statement of an American physiologist that "The United States is losing millions of dollars a year through the inadequacy of abstracting efforts". Research funds were wasted because abstracting services had not achieved the degree of excellence and promptness deserved by scientists. There was a more important aspect ; the world had progressed out of savagery and barbarism as the result of the work of scientists whose talent was indispens-

able and whose lives were often too short ; nothing should impede their efforts and every resource should be brought to their assistance. Everybody should work for the better integration and diffusion of knowledge. Scholarship requires prompt and comprehensive indexes to current scientific literature ; informative abstracts covering wide fields and specialized services for restricted fields. No one service could solve all the problems. There should be exchanges of experience, goods and services ; friendly co-operation and friendly rivalry instead of antagonism. The Conferences sponsored by Unesco represented progress, even if the tangible results were still small.

In spite of language barriers, abstracting services could help each other with rare publications and abstracts of them, co-operating for the general welfare while respecting each other's independence. There might be a case for continuing some specialized services on a co-operative basis, but, in wider fields, other individual enterprises might be replaced by a common service.

The Chairman thought these interesting comments did not touch the real question of co-ordination of abstracting services. General amalgamation was out of the question, but abstracting services, as co-operating units, could sponsor lists and handbooks, the tools of their work, exchange abstracts, use common abstractors and possibly set up national committees.

At the request of the Chairman, Dr. Findlay described the progress in co-ordination and co-operation that had been attained in Great Britain since the Royal Society Conference in 1948. Committees had been formed and problems, e.g. of nomenclature of drugs and insecticides and of date of publication, had been clarified. An experiment in international collaboration was being made by interchange of abstracts from rarer journals between *British Abstracts* and *Excerpta Medica.*

In the discussion which followed Professor Verzar put in another plea for the countries that required abstracts in their own languages ; other speakers stressed the difficulties of exchange of unstandardized abstracts ; of the considerable delay that might occur if abstracts had to be translated into several languages, and that standardization of form, of symbols and of abbreviations did not imply standardization of contents.

THE ARRANGEMENT OF BIBLIOGRAPHICAL INFORMATION IN ABSTRACTING JOURNALS

by Dr. I. Leitch.

Current practice.

To provide a basis for this discussion I have had prepared a sheet showing the layout of bibliographical information in the abstracting journals with which I am most familiar : those of the Commonwealth Agricultural Bureaux and the associated Institutes of Entomology and Mycology, the *Bulletin of Hygiene*, *British Medical Abstracts*, *British Abstracts*,, *Chemical Abstracts*, and *Biological Abstracts*, and, for comparison, entries from the *Quarterly Cumulative Index Medicus*. From each a sample is shown of the entry for a paper written in English and one written in another language. The layout shows that editors of abstracting journals interpret their duties to their readers very differently in respect of bibliographical information, and even this incomplete collection of samples includes a fair proportion of the possible methods of arranging the details.

What ought to be included.

Is it the duty of those who produce abstracts to make their references complete and satisfying to the bibliographer ? Or is it enough to give the abstracts headings sufficient only to make it possible to find the original papers ?

If the second alternative is adopted, the correct documentation of a book may involve much extra work unless the writer refers to each original paper quoted, and that may not be possible. A reviewer often wishes to summarise the work done at one centre. Bibliographies in textbooks are more likely to appear interesting and to be used if they include the titles of the publications quoted.

On the other hand, there are, I think, limits to the amount of detail which editors of abstracts can be expected to supply. For instance, when *Nutrition Abstracts and Reviews* began, we planned to give complete bibliographical details, including numbers of figures and of references and we did so for one year. But very few authors number their references (and numbering is even less usual now than then) ; some have the lamentable habit of putting the references at the bottom of pages and even of repeating them on different pages ; so that to give the correct number of references proved a task which, we decided, cost a great deal more time and labour than it was worth.

In my opinion, every abstract journal should give the information set out below, if that is possible.

1) Author(s) surname(s) and full *initials*, with any further identification mark, such as Jr., that may be necessary.

2) The full title of the paper, as in the original or in a transliteration, even if the title is unnecessarily long and even if it does not make sense.

3) A translation of the title, as nearly literal as possible and regardless of its possible faults.

4) The name of the journal ; year of publication ; volume, and, if necessary on account of pagination, the part number ; first and last pages of the paper.

5) The place where the work was done.

6) Presence of a summary or summaries in a language or languages other than that in which the paper is written.

Each of these items (except the last) gives rise to difficulties of which many editors of original papers appear to be happily unconscious.

Difficulties arising from the original material.

The first difficulty, affecting authors' names, titles of papers, names of journals and places of work, is exotic scripts and their transliteration. Transliteration will usually be necessary because the printers of abstract journals, often provincial firms in Britain, cannot be expected to carry eight or more founts of characters which would have to be set by hand. If they did, that would greatly increase the cost of production.

Surnames.

There are three types of difficulty. The first is transliteration. It seems obvious that one international system of transliteration for each language requiring it would be a good thing. Its only disadvantage would be the break in the indexes of journals changing their system. This would require explanation and some carry-over reference. A uniform system would obviate the present muddle in which the name of the same author may be transliterated in a different way in each of several different original journals with resultant confusion in abstract journals.

The second is prefixes. A standard procedure in respect of names with de, von, van and all the many others, would simplify the making and use of indexes.

The third is compound names where it is impossible for the foreigner to decide which are christian and which surnames. This applies, for instance, to Indian and Spanish names. Sometimes the tables of contents or the indexes are helpful ; sometimes they are not even consistent within themselves. A guide to the correct presentation and indexing of such names would be a great help.

There is the minor difficulty of titles. We omit "Sir" but cite, for instance, Lord Horder as Horder (Lord).

No author.

Sometimes there is no author's name in the original layout but it is clear from the text of the publication that it comes say from a Committee or Council. Is it right or wrong to give the name of the Committee or Council, in place of author ? If given, should it be bracketed to show it was not in the original heading ? Sometimes an article is simply anonymous and there is nobody to whom it can be credited.

Title of paper.

I can think of no sufficient reason for not giving the full title of a paper. It is true that titles are often too long ; they may be badly chosen ; they may be ungrammatical and even nonsensical, but I still think they should be given. The authors wrote them and the editors passed them. The saving of space and cost of printing represented by abbreviated titles may be considerable, but it is the user who pays and the waste of time involved in getting correct titles when they are required must be set against the cost of correct titles in the first place.

From the abstractor's point of view, it would often take longer to think out a rational abbreviation than to transcribe the original, and the rational interpretation of the subject is, in my opinion, part of the task of grouping abstracts by subject and of subject indexing, not of primary presentation.

The full title of a paper is sometimes necessary for its identification. This is the main argument for giving the original titles in scripts such as Russian and Chinese, or transliterations of the titles. When a transliteration is provided there does not seem to be any reason to provide also an abbreviation, and the full title is more valuable than an abbreviation.

Standard systems would simplify the transliteration of titles and it would not have the retrospective awkwardness of changing the system used for authors' names.

Translation of title.

So few people read many foreign languages that it must be a serious disadvantage to them when abstract journals do not translate titles. It must mean that they have to read an abstract to discover whether it is of interest. And that may mean considerable waste of time when abstracts are not arranged in blocks on the same subject and in sections on allied subjects.

Journal reference.

Assuming the transliteration difficulty solved, there are others which arise from peculiarities of numbering and dating journals in relation to pagination. For instance, the *British Medical Journal* publishes two volumes yearly ; they bear the same date, and "volume" numbers i and ii, separately paged. A most confusing example is *Medicamenta.* There the date and "year" appear on the outside cover and the volume number inside. The two do not correspond. The current issues are 1949, "year" 7, volume 11. There are two volumes per annum. The issues are numbered continuously year after year and the pagination is by volume.

The use of "year" with or without "volume" numbers is confusing. In *Nutrition Abstracts and Reviews* we simplify as follows : when there is only one volume annually, so that year and volume are synonymous, we give that one number, whether it is stated as year or as volume, in Clarendon type (see printed sheet) ;[1] when both are given and they differ, we give the volume number.

Some journals cause difficulty by paging each number separately ; others number separate issues with continuous pagination within one volume ; others, with two volumes in one year, number the issues continuously over the year but page each volume separately ; still others number issues consecutively year after year, but page volumes separately. Except where each issue is separately paged, to quote the number of an issue is only to make the reference more complicated without adding much to its usefulness at any time ; when the volume has been bound, it adds nothing. If journals would adopt a uniform system of dating, numbering and paging, it would simplify things for abstractors.

Abbreviation of journal names.

A standard form of abbreviation would be useful. There does not seem to be any strong reason why one form should be preferred to another so long as the abbreviation can be easily interpreted, or a key is provided. It is obviously simpler to have one key for all than to have several keys, or each abstract journal

1. Not reproduced.

publishing its own key. But at present there is no one adequate key. The *World List* is so out of date that many new abbreviations have had to be invented and the *Index Medicus* covers only a limited field.

Because of its width of cover, the *World List* seems to be the obvious choice. The new edition should be nearly complete but since new journals are constantly appearing and some old ones disappearing, steps should be taken to supplement it at intervals with additions and deletions.

It has recently become the fashion for journals to put abbreviations on their covers and even complete references at the beginning of each article. The idea is admirable *provided* precautions are taken to see that the abbreviations chosen are not already in use for another journal. There are so many with similar names.

Page numbers.

It is, I think, a help to give the first and last page numbers of each paper to tell the reader how long the paper is, which gives some indication of how much it contains. It would also help occasionally to minimise the confusion that may arise with issue numbers.

Place of work.

This is the item of information most often omitted from abstracts. It is useful to give the place of work for at least two reasons. It is often a guide to the value of a paper by an unknown writer, and abstract journals that do give place of work serve as the most comprehensive general guide, at present, to where workers are located. From the practical side, it gives an address to which inquiries about the work, or requests for reprints, may be sent. The difficulties are that many journals do not give place of work as part of the heading of the paper, or give only the name of a hospital or institute without its location. When we know from past experience where it is, ought we to supply that information, with or without brackets ? Or would editors of papers realize that a hospital name, in Spain or Denmark, does not necessarily identify it to the French or English abstractor ?

There is additional difficulty when two or more place names are given. Our custom has been to give the first only. That is sufficient for the purpose of getting in touch with the writers, but we are at present considering whether it would be better to give all the place names or to select the name of, say, a research centre when one is included.

If then we could agree that all these items of information are important and should be presented, the question remains of the best method of presentation.

ARRANGEMENT OF INFORMATION.

The samples presented for your inspection[1] will show how diverse are the products of individual taste in type-setting and individual ideas of utility.

By subject or journal.

Only one of the journals represented, *Helminthological Abstracts*, arranges its abstracts by original journal ; all the others group first by subject. I do not know enough about helminthology to know whether grouping by original journal is satisfactory for that subject ; for most subjects it would certainly not be.

1. Not reproduced.

Names and titles.

It is difficult to think of any guide to the arrangement of the several parts of a complete reference except its usefulness. The consensus seems to be that the author(s) name(s) should come first and this idea must find favour with those who like to put abstracts on cards and file them. At least their author files will be easy to arrange and, since a catchword will, in any case, be required for their subject files, it does not seem so important to them that the title should leap to the eye.

Dr. Clegg thinks the title more important to the reader, but I do not think this would be the usual reaction in science. The majority of important papers are written by experienced and known workers (though they must all write a first paper). You will pick out the important names and look to see what has been written.

It seems to me correct, from considerations of both utility and psychology, to put the author(s) name(s) first, the title second and the reference third.

Reference.

How a reference is set out is, on the whole, less important than that it should be immediately capable of interpretation. It happens, more often in bibliographies of original papers of course, but it can happen in abstracts, that it is impossible to say whether a given figure refers to a volume, a "year", a number or a page. We have already discussed the reasons, usually referable to the original journal. But there are considerations of usefulness which may influence our choice of layout. The purpose of the reference is that the original paper may be consulted. We have read an abstract; we go to the library to consult the original. What do we need first ? The name of the journal. What second ? The date and volume. What third ? The number (sometimes) and page. That seems therefore to be the most useful arrangement.

Or you may think more people will use abstract journals as a source of references when they write than will wish to consult original papers. You may then wish to give them the references in the form preferred for bibliographies of papers and reviews. There the purpose is different; it is to give a coherent picture of work done and the author(s) name(s) and the dates of publication are most important. But again in textbooks the purpose of a bibliography is to stimulate reading, which means visits to libraries, so that the first arrangement (what might be called the library form) would be more appropriate.

Translation of names of journal.

I should say there is no justification for translating the name of a journal. Those who do not read the original language will not profit much from knowing what the name means, and those who do read the language do not require a translation. Indeed, the translation might come to be used in place of the original name and so lead to endless confusion.

Nor, in my opinion, is there anything to be said for dual names on journals. One Dutch dairy journal has its name in Dutch and English, with the result that some abstracts give the name in one and some in the other language. This is no real aid to finding things and, unless one knows, may give the impression of two journals and of multiple publication of the same paper, a habit which, where it does exist, is so much to be deplored.

Place of publication of original journal.

There must be a limit somewhere to the amount of information given in abstract journals. I submit that the place of publication should never be quoted *unless* it is necessary to identify the journal. It is the function of publishers' and booksellers' lists to provide that information.

Choice of type.

The choice of type appears to me to be relatively unimportant so long as different types are used and used consistently. Ease of interpretation is the important consideration. From the examples supplied on the printed sheet you may think that some are simpler and more " obvious " than others, and therefore better.

Publications other than journals.

There are bulletins of many kinds, occasional reports, theses, and books. Again author(s) name(s) and titles should come first and, as we prefer for journals the form of reference that is most useful for library use, so we think the same general principles should be applied to other publications.
Examples are given below.

Bulletin : Broadbent, D.A., Blanch, G.T. and Thomas, W.P. An economic study of sheep production in southwestern Utah. Utah Agric. Exp. Stat. Bull. No. 325, August 1946, pp. 64. (Logan, Utah.)

Thesis : Niemeyer, J.A. Bijdrage tot het onderzoek naar nicotinezuur in urine en bloed. (Contribution to the study of nicotinic acid in urine and blood.) Thesis, Rijksuniv. Utrecht. P. Den Boer, Utrecht, 1946, pp. 94. English summary.

Book : Dukes, H.H. (with Hewitt, E.A. and Asdell, S.A.) The physiology of domestic animals. Comstock Publishing Co., Inc., New York, 1947, 6th ed., pp. xii+817. Price 4ls.

In conclusion, the suggestions made above are, I think, valid not only for abstract journals published in English but for all abstract journals. It is just as important to translate a Russian title into French or Danish as into English and just as necessary for others as for English-speaking people to have all the details clearly and adequately set forth.

The several points were debated. Particular attention was given to whether the author(s) name(s) should precede or follow the title of a paper in a bibliographical reference. A majority thought it should [see also Professor Lépine (p. 73) and Mrs. Cunningham (p. 68)] but much of current practice was to put the title first and there would be difficulties about changing the order ; as there would be also about giving full titles and translations " as nearly accurate as possible ".

ABBREVIATIONS, CONTRACTIONS AND SYMBOLS USED IN THE MEDICO-BIOLOGICAL SCIENCES

by Mrs. M. LWOFF.

The Executive Committee's request that a paper on the "Abbreviations, Contractions and Symbols used in the Medico-Biological Sciences" should be presented at this meeting undoubtedly sprang from the consideration that, so far as possible, the same practices should be followed everywhere in this matter, and probably also from the consideration that bodies dealing with the analysis of scientific writings are particularly qualified to adopt and publicize recommendations which may be of interest to scientists throughout the world.

I do not claim, in this short report, to deal exhaustively with the whole problem of abbreviations in relation to the medico-biological sciences. It is designed to serve as the basis for wider discussion and it consists mainly of a few comments inspired by the daily perusal of scientific literature.

Simplifying slightly, we may say that the abbreviations used in the medico-biological sciences are of two kinds. Firstly, there are those in general use in all branches of science, which relate to a specific organized system and, having been classified a fairly long time ago by the competent bodies, are — or should be — familiar to all who use them. Secondly, there are those which belong more particularly to the branch of science we are concerned with here, and which are frequently invented at will by writers, often with no other object than a sometimes exaggerated desire to simplify their writing. When, as in some cases, they are accompanied by a careless style, they may well try the reader's patience.

The first category covers abbreviations for units of measure, length, weight, volume etc. There do not seem to be any special difficulties in this respect. The metric system, or preferably, the derivative C.G.S. system, is very generally employed except in a few extremely rare instances which we shall discuss later. It is thus simple and easy to observe the official abbreviations for use in the system which are, moreover, almost universally adopted.

We should, however, draw attention to one or two points, mainly concerning the abbreviations used for the gram (the unit of weight in the C.G.S. system) and the cubic centimetre (the unit of volume in the same system). The abbreviation for gram is g. Now, very frequently (and this applies particularly to French writers, who ought, after all, to be particularly scrupulous about observing the rules of a system which is by no means foreign to them), we find the abbreviation gr used. This abbreviation is quite unjustified. The use of it is liable to cause confusion with the abbreviation for the English word grain (gr), which is often used by Anglo-Saxon writers in medical or veterinary posology, and may lead to serious mistakes, particularly in that field. Similarly, there is no logical ground for the abbreviation Gm, which is sometimes found and which should not be permitted.

The case of the cubic centimetre is rather more complicated. The abbreviation is cm^3. This is widely used, but has in some cases been supplanted by cc. This form should be rejected, since it is not the official form and has no

apparent relation to the centimetre, cm, on which the expression is based. This is no doubt the opinion of the Editorial Committees of periodicals such as the *Journal of Bacteriology*, the *Journal of General Microbiology* or the *Biochemical Journal*, to mention a few, who recommend writers to use ml, the correct contraction of millilitre, instead of cc, the incorrect contraction of cubic centimetre. A curious repercussion of this has been the appearance of the form ml in European publications instead of the classic cm^3, to such an extent that the *Société française de Microbiologie*, for instance, has been compelled to discuss the problem. As the official system is the C.G.S. one, in which the unit of length is the cm, from which the cubic centimetre (cm^3) is derived, and as French Learned Societies have adopted this system exclusively, the *Société française de Microbiologie* did not consider it possible to adopt a different form. Furthermore, one change inevitably breeds another. Thus the cubic millimetre, for which the abbreviation mm^3 has from time immemorial enjoyed world-wide recognition, is henceforward to be replaced by the 1,000,000th of a litre, abbreviated μl. The advantage of such changes is hard to see.

Moreover, the millilitre is not in fact a measure of *volume*, but a measure of *capacity*, and we more often wish to express volume. Lastly, the litre, as a unit of capacity, is derived not from the standard unit of length but from the standard kilogram, and, strictly speaking, the millilitre is not the exact equivalent of the cubic centimetre. The adoption of the millilitre is therefore the adoption of a measure which is not based on measurements of length, as for surfaces and volumes. There is, to say the least, no point in adopting two arbitrary units, the metre and the litre, for the measurement of two quantities, one of which derives logically from the other. It therefore seems that, in this particular instance, the standard form which we mentioned at the beginning of this paper should be the cubic centimetre = cm^3, which is the clearest, most logical, and only correct abbreviation of that measure of volume.

One or two other small points. The first concerns the microgram which is expressed in the form γ and μg. We would suggest that the use of the latter form should be recommended. Another relates to measures of time ; minutes and seconds in time should be indicated by mn and s (or min. and sec.), reserving ' and " for the minutes and seconds of arcs.

As a final rule, which is often neglected, abbreviations never take the plural (20g and not 20gs) and are never followed by a full stop.

So far as chemical symbols are concerned, biologists cannot do better than follow the chemical nomenclature codified by the International Chemical Congresses.

Finally, some remarks on binary, zoological or botanical, nomenclature seem called for. In titles, the name of the genus should always be given in full, followed by the name of the species. In the body of the document, the name of the genus should be given in full at least once at the beginning of the article and again in the summary. In the course of the article, the initial of the name of the genus is enough, but the name of the species should *never* be abbreviated and, in any case, a living creature should never be referred to by two initials only, as, for example, *S.a.* (for *Staphylococcus aureus*) or *E.c.* (for *Escherichia coli*), or by the name of the species alone, without at least the initial of the name of the genus before it : *M. rhesus* and not *rhesus*. If the name of the genus is not sufficiently clearly expressed, the name of the species by itself means nothing, for it may correspond to a number of genera, e.g. *septicus*, which may be associated with *Bacillus*, *Bacterium*, *Coccus*, *Micrococcus*, *Proteus*, *Streptococcus*, *Tetracoccus*, *Vibrio*.

Those seem to be the main points of dispute in connection with the first aspect of the question.

We must now consider abbreviations or contractions which are not formally classified.

First of all, we have to leave aside those relating to clearly defined branches of study of more or less recent development, which have had to coin their own special vocabulary, such as genetics. It is essential for the reader to familiarize himself with this vocabulary and the abbreviations and symbols used, for he has no alternative to accepting established usage. Within each subject, authors and editors must themselves guard against allowing what might perhaps be called "excessive misuse" to become current.

Furthermore, a habit is spreading among all the medico-biological sciences, which might become a nuisance if not a danger; it is the habit of expressing terms, which are apparently too long to write, by their initials alone or by letters selected arbitrarily from the body of the word. Examples are the expressions for certain chemicals: PAB for para-aminobenzoic acid, AAF for acetaminofluorene, BAL for British antilewisite, DNA for deoxyribonucleic acid, and even DNase for deoxyribonuclease.

Next come expressions referring to diseases; either their agents: PVM = pneumonia virus of mice, strept.s.b.e. = streptococcus of subacute bacterial endocarditis; or the prevention of them: APT = alum precipitated toxoid, P.T.A.P. = purified toxoid alum precipitated; or their treatment: Sm = streptomycin. In addition there are a few miscellaneous expressions, such as RDE = receptor destroying enzyme, RDF = receptor destroying factor, and even for the red blood cells, which become RBC.

What is strange is that such contractions, generally of Anglo-Saxon origin, are simply incorporated in texts written in other languages (French, Italian, Spanish), in which they are unintelligible to anyone who is not familiar with the subject of the article. Lastly, they are also found in titles, which they make look mysterious and forbidding.

This habit, which is tending to spread, seems an obvious misuse. However, the tendency is already so strong that it would be useless to try to resist it, and it is therefore wise and necessary to come to terms. To keep the tendency within bounds, it seems advisable that writers should be asked never to use abbreviations which are not generally recognized, without giving a preliminary explanation. So long as scientific writings are not secret documents, readers are entitled to have a key to the code.

To sum up, it seems that authors and editors might well be advised:

1) to observe and to insist on the observance of the recognized abbreviations of the terms in most common use, whether they belong to the metric system and its derivatives or to the traditional systems;

2) to avoid, as far as possible, the use of terminology other than that used in the metric system and its derivatives;

3) to avoid using (especially in posology) any abbreviation which may be confused with an abbreviation employed in another system, e.g. gr for gram;

4) to avoid using any abbreviation for any word which is not covered by a recognized system, without giving a clear definition of it at least once in the course of the article.

In titles and summaries, words should always be given in full.

The proposals were approved in principle. The Committee thought that guidance should be sought from learned bodies in the several fields of interest and that, as a first step to standardization, Unesco should collect lists published by such bodies. Later the issue of a handbook embodying approved symbols and abbreviations would be considered.

THE LIBRARIAN'S PREFERENCES REGARDING ABSTRACTING SERVICES

by Mrs. E. R. Cunningham.

The abstracting of scientific literature is a service to science, and abstracting publications form an essential part of the scientists' working equipment. They are of importance to four groups, all of whom approach the abstracting of literature from slightly different angles ; these are the scientists, the documentalists, the librarians, and the producers of abstracts.

Abstract services are used by them for different purposes and in different ways. It is a curious fact that scientists, when considering the format and arrangement used by abstracting services, fail to realize that they themselves use a given service at different times in different ways. A scientist working in a given field, for example chemistry, first uses the current issue of *Chemical Abstracts* as a source of information. He scans the issue to see what is important to him in a certain subject and cares little in what form the reference appears ; for the moment, the subject is the chief interest. Within a few months, however, this same scientist, in preparing an article, will know of articles to which he needs to refer ; then the important thing is to locate the reference rapidly, and author indexes and accuracy of bibliographic detail become of much greater importance. At this point, the scientist frequently turns his problem over to some librarian, who is therefore often more familiar with, and better able to judge, how adequately the various services are meeting the scientist's needs than he is himself. The librarian's varied experience as a user of abstract services makes it important to obtain the opinion of this group.

In addition to differences in use, there is also a difference in the degree to which the users depend on these services, and that in turn is often determined by where they are working. If they work in a large centre with a vast collection of periodicals available, and are good linguists, abstracts will be less important to them than to scientists working in small colleges and research centres situated in remote areas. Therefore, in order to obtain any real sample of opinion, it seemed necessary to include individuals over a widespread geographic area and working in both large and small institutions.

In order to follow such a plan, a questionnaire was sent out to all members of the Medical Library Association which includes Canadian and foreign librarians as well as those in the United States, and it was also sent to some additional foreign librarians who are not members ; in all approximately 450 copies were issued.

A total of 185 replies was received. Of this total, 7 were Canadian and 42 were from countries other than the United States. The British medical librarians were so much interested that the Medical Section of the Library Association decided to discuss the questionnaire at their April meeting and a pooled report of this meeting, representing the opinions of 30 librarians, was sent for inclusion in the final tabulation.

It was decided to emphasise "format" and the bibliographical detail used

by abstract journals in this report; therefore, the questionnaire sent out dealt largely with those features. Librarians expressed their preferences as follows :[1]

STYLE AND TYPOGRAPHY.

Size of paper.

The size, 7 1/2 × 10 inches, used by *Chemical Abstracts*, was the favourite, 65 preferring this, and 49 preferring 6 1/2 × 9 3/4, the size now used by *Excerpta Medica ;* the size used by *Abstracts of World Medicine* got 19 votes and *Biological Abstracts* 10. Forty-two librarians had no preference.

Arrangement on page.

Here the vote was 121 to 58, the majority preferring arrangement by column. Several stated that when a larger size paper was used they preferred columns; with a smaller size arrangement in columns was not practical. Where columns are used, the majority thought that a central guide of letters or numbers was useful. A large majority, 145, would like the citation numbers to refer to the individual abstracts rather than to columns or pages.

Type and style of print.

For author's name the largest vote went to "bold face same size as text". The next largest went to "large bold face"; "large light face" had only 30 votes. The majority felt there should be some contrast, but felt the publisher should work this out.

For title, a big majority wanted "bold face followed by translation in italics". The next largest vote was for bold face alone. Almost all were opposed to a translation placed first.

In regard to the name of the journal, opinion was divided, 68 voted for italics. There was an even split of the remainder between, "bold face" and "same print as text"; only 9 voted to place the journal's name in brackets. A majority, 110 to 65, thought inclusion of place of publication of journal unnecessary; those in favour of including it preferred this information in brackets following the title.

Cheaper methods of production.

A majority, 108 to 54, thought such methods as offset type advisable if it meant a saving in production and subscription costs and rapidity of publication. Twenty-three did not comment on this point at all; some saying "not familiar enough with such methods to answer". The majority of the British librarians voted against such methods.

BIBLIOGRAPHIC FORM.

Author or title first.

There has been much discussion as to the relative merits of the arrangements used by abstracting services and of the value of standardizing them if agreement could be reached on the best form to adopt. There was almost unanimous approval of standardization, 181 in favour, with only 4 votes against it.

1. Not all voted on every point; therefore, where the figures cited do not add up to 185, the difference represents the number of "no vote" on that particular point.

Author entries for abstracts rather than title entries were preferred by the majority of librarians, 155 to 28. Only 2 stated they felt the matter unimportant, the lowest number of "no preference" on any question. The usual reason given for preferences for authors first was that the abstracts could be more easily located on the page, that this form has been accepted throughout the world for years as the standard for bibliographical form, and that many opportunities for error occur when the references are copied for bibliographical citation unless this form is used. Many pointed out that the original article is often not available so the abstract journal must be used as the source of bibliographical data. Several stated the only feature they did not like in *Chemical Abstracts* was its incomplete bibliographical data. Locality seemed to make little difference to the responses regarding author versus title entry, as only 4 out of the 49 non-American librarians preferred a title entry.

Author's address.

A total of 173 librarians thought this information very helpful, and the majority, 145, preferred to have this information immediately follow the author's name. However, 141 voted to omit it if it would delay publication.

Title.

That the title should be in the language of the article followed by a translation were the opinion of 157 librarians. If translation, in addition to correct title, was not possible, then the majority favoured having the title in the language of the article ; there were only 11 votes in favour of titles in translated form only.

Notes about illustrations, charts, etc.

Opinion here was more evenly divided, 109 saying they were useful, 62 that they were not essential. The majority thought such notes should appear at the end of the reference.

In answer to the question, "if all of these features cannot be included, which should be sacrificed ?" the majority replied, "notes about illustrations, etc." Second choice fell on the author's address ; a few suggested that translations could be omitted.

Volume and issue numbers.

A big majority, 125 to 19, thought that in the bibliographical citation, the volume should come first, and the date at the *end* of the reference.

A big majority, 141 to 41, felt the issue number was unnecessary ; some proposed using date of issue instead of the number as in the *Quarterly Cumulative Index Medicus.* The use of curves was proposed for addresses, translations, issue number and pages in that order of frequency, but many said, " As few curves and brackets as possible, please ".

It was obvious that none of the bibliographical forms in use by the major abstracting services fitted the librarians' ideal. The majority proposed that the following form be used :

Boldface.	*Italics or curves.*	*Boldface.*
23891. Csernyei, Giulico,	U. Milano.	Esami sul fluoro della dentina
Brackets or italics.	*Boldface.*	*Boldface.*
Estimation of fluorine of dentine,	Arch. Sci. Biol.	27 : 67-71, 1941

Each abstract journal, however, had its little group of advocates in the following order : *Biological Abstracts* (old form), 31 votes ; *Excerpta Medica* 16 ;

World Abstracts of Medicine 11 ; *Nutrition Abstracts and Reviews* 9 ; *Chemical Abstracts* 8 ; *Zentralbl. f. allg. Pathol.* 1. Some librarians, while voting for the "ideal" form as given above, *also* indicated a preference among the forms given as samples in the questionnaire. Many stated they hoped a standard form could be adopted and that the medical indexes would also adopt it.

Lists, indexes, and consolidated editions.

Contents and author lists for unbound issues.

Opinion was divided in regard to the position of contents ; 69 selected the inside of the cover, 2 wanted it on the outside, 55 preferred it immediately preceding the text ; only 16 voted to place it at the back of the issue, and 43 had no preference, 30 of these being the British group.

The majority of librarians, 158, voted to include author lists in unbound issues, 19 seemed to think they were not necessary, and 8 did not express an opinion. In regard to their position, 46 voted for placing them at the back of the issue, 38 to follow the contents, 24 inside the cover, 18 to precede the contents, and 59 had no preference. Many said, "Position does not matter much as long as they *are* included ".

Lists of journals indexed.

That most librarians thought such lists valuable was shown clearly by the vote, as 178 were in favour of their inclusion. As to how frequently they should be published, the majority said "annually", some "in each issue". Others realized that expense would have to be considered and suggested that if it were not possible to have annual publication, then an annual supplement for new journals with cumulative lists published every five years might suffice. Several suggested the need for standardization of abbreviations. One comment was, "It would facilitate research if the major abstracting services would agree on the use of abbreviations for journals". "A *List of Journals Abstracted* with abbreviations published under joint editorship by four or five of the leading abstracting services would clear the way for greater use of literature in our search for scientific truth", was another comment.

Consolidated editions and indexes.

As to the value of a consolidated edition for libraries, where there are several sections to a service, the vote was in favour of them by 112 to 61, 12 having no opinion. The British group voted against them.

The vote for consolidated indexes was 133 in favour; 59 thought some arrangement such as the *Proceedings of the Royal Society of Medicine Index* might suffice ; many added, "if nothing better can de financed", or "if consolidated index cannot be provided". Frequently librarians who thought that a consolidated edition was not necessary nevertheless voted for consolidated indexes.

General comment.

Librarians seemed to be overwhelmingly in agreement on the desirability of standardizing the form of bibliographical data, 181 voted in favour and only 4 opposed. A large majority, 147, wanted the "most complete coverage possible, of the subjects supposed to be covered". Only 38 voted for selective services and these removed the questionnaire word "highly" before "selective" in

their replies. The group of 30 British librarians in their pooled reply stated that "This should be a matter of editorial policy" and this accounted for all but 8 of the negative votes. The votes from other countries were almost unanimously in favour of the maximum coverage possible.

Hardly a librarian failed to rate promptness of publication, both of abstracts and of indexes, as the most desirable feature of an abstracting service . Almost all mentioned the desirability of good, clear, concise abstracts, and many mentioned they should be signed, and published in a form which gives complete bibliographical data, is easy to locate on the page, and would permit uniform bibliographical citation, without change of form. Many indicated a preference for the "informative type" of abstract.

Librarians were also in agreement in regard to what they thought were the worst features of abstracting services. Delay in publication, and delay in appearance of indexes took precedence. Many were bitter on the point. I quote, "I do not think any society, institution or commercial firm has the right to set up an abstracting service and accept subscriptions on that basis if it is not prepared to publish adequate annual indexes promptly upon the completion of the annual volume. The abstracting service then becomes merely a monthly bulletin of information and the situation seems to be getting worse and worse". This comment was from a European librarian. Many stressed again and again that while refinements of publication were nice, everything possible should be eliminated which stands in the way of rapid publication and prices low enough to bring the services within the reach of the investigator.

Many librarians were unhappy about *unneccessary* duplication. Several granted the need for service to different types of clientele and in different languages "*but*" they ask, " how can we justify as much duplication as exists today ?"

Some pointed out that librarians must frequently subscribe to many services against their better judgment, because scientists in their institutions ask for them. "If there were a few good abstract journals which covered specific fields thoroughly and promptly, it might be easier to educate faculties to dispense with the rest, and hours of fruitless search would be saved", one lamented. Another said, "If all the effort and money now expended were pooled, better comprehensive services would inevitably result".

Many thought there was too much emphasis on the material readily available and too little on that appearing in the less familiar journals. One librarian in an ophthalmological institute pointed out that, all too often, the ophthalmological abstracting services failed to include articles on that subject which appeared in non-ophthalmological journals, but abstracted faithfully all of the ophthalmological journals, most of which were, of course, on the library shelves.

While many librarians felt that type and style of print were relatively unimportant, where clarity and expense were involved they had definite opinions : e.g., many thought *Excerpta Medica's* method of combining volume and issue numbers was confusing, especially for certain journals. They also commented that their use of the complete titles of all journals, instead of abbreviations, meant an unnecessary outlay of money.

In analysing these 185 replies, I was constantly reminded of a letter which reached my desk not long ago, from a scientist interested in speeding up information on cancer research : "The trouble is", he said, "we are trying to handle the vast output of literature and research of an atomic age by exactly the same means employed in 1880 when its volume was incomparably less, and the methods adequate then are hopelessly inadequate now. Until we clear our minds of old prejudices and adopt new methods designed primarily to achieve prompt and complete dissemination of information, research will be handicapped ".

This is not an easy problem to solve. The production of a good abstract journal, at present, is unbelievably expensive. Scientists and libraries, for the greater part, cannot afford to pay subscriptions high enough to support them adequately, but subsidy other than through subscriptions is difficult to obtain. Methods of production and means of making the services self supporting need study. Part of such study should be to find out what the users really want and how their wishes can best be met. This report is one of what we hope will be a series of reports on abstracting services from the user's point of view.

ABSTRACTING SERVICES FROM THE USER'S POINT OF VIEW

by Professor P. LÉPINE.

The following notes are based on :

a) personal experience as both abstractor and user, and

b) an enquiry among colleagues who make extensive use of abstracts.

They reflect the views of the majority on the ideal abstracting service. Comparison with existing systems will enable an estimate to be formed of the defects in the abstracting periodicals now available.

The points are set forth in order of importance.

Speed of publication.

There was unanimity that it is important for abstracts of articles to appear as soon as possible after the originals. All the users who were consulted prefer a short abstract produced very quickly to a detailed abstract after several months.

Subjects treated and their classification.

Users generally prefer a publication covering the whole of one discipline, microbiology, biological chemistry, physics, the discipline being understood in its widest sense and the arrangement distinguishing the more specialized sub-divisions of the subject, e.g. bacteria, viruses, insects. The main divisions of the *Analytical Bulletin* of the C.N.R.S., for instance, are generally considered satisfactory, but it would be desirable to have a greater number of clearly defined sub-divisions.

It is unanimously felt that the abstracts should be grouped according to the subjects they cover, e.g. works on microbiology, works on biological chemistry, not by country or language, e.g. English, German or Spanish works.

Types of abstract required by the user.

There is a general desire for condensed abstracts reproducing the main points of the author's conclusions and a few facts and numerical data which would give a concise idea of the contents of the original.

The majority of the people consulted feel that the abstract should run to 10 or 12 lines as a maximum ; most abstracts can be given in five lines.

It is desirable for some indication of the number of illustrations and bibliographical references to be given with the abstract. Several users, but not the majority, like the abstract to give the abstractor's personal opinion on the value of the original ; this implies that the abstractor is competent to assess such works.

Classification.

In each number of the periodical and in the bound volume, it is essential for abstracts to be grouped according to clearly sub-divided subject headings ;

it is also desirable for the abstracts within each sub-division to be arranged alphabetically by authors' names. Each number should give, on the back of the cover, for instance, a list of subjects dealt with and a list of authors.

When a work comes under two different subject headings, it is desirable either for the abstract to appear in two different places or for some reference to the original abstract to be given. For instance, an article on silk worm "grasserie" could be classified either under "insects, infectious diseases", or under "virus diseases of insects". The reference should be repeated under each relevant subject heading, e.g. insects, viruses, nucleoproteins, extraction techniques.

Arrangement of the abstract.

Nearly all users prefer abstracts to take up the whole width of the page rather than to be divided into columns, as fewer mistakes are then made in transcribing authors' names and titles. It seems preferable to arrange the entry in the following order :

Author's name, full title of the work in the original language followe dor not by a translation, in brackets, into the language of the abstract, *title of the publication* in italics and abbreviated according to some international standard, year of publication, volume, pages (first and last pages of the work) and finally the number of illustrations and references.

The abstract should then follow in smaller type.

Special importance is attached to the preparation of annual author and subject indexes to facilitate bibliographical research. It should be stressed that, for most users and in most cases, it is more important to know that a certain work exists and to have the author's name than to be given even a brief abstract of the work.

Co-operation.

Several methods of co-operation may be considered. The user would find it most useful for publications covering related disciplines to exchange abstracts of papers relating to more than one discipline, so that readers of specialized abstracting reviews may be provided with abstracts in related fields in addition to their own strictly defined field. It does not seem desirable from the user's point of view for the works which are abstracted in any given review to be limited to any geographical region.

Standardization.

It would be most advantageous, from the point of view of simplifying the user's task, if some standardized method of arrangement and of abstracting could be adopted by abstracting journals throughout the world.

In this connection, special importance should be attached to the standardization of current abbreviations and the symbols used for metric units, quantities, chemical formulæ.

It would be useful if the metric system were finally adopted by scientific publications and the system of writing numerals were unified. For instance, for dividing numbers into thousands and for marking decimals, the Anglo-Saxons use a point where the Latins and Germans use a comma, and vice versa.

Use of abstract journals for establishing card indexes.

One of our colleagues suggested that abstracts should be produced in such a

way, for instance by printing on one side of the page only, that they could be cut out and stuck on cardboard to build up a card index under different subject headings.

It does not seem likely that this suggestion will be generally adopted, owing to the extra printing costs involved. But it would be possible to have an appendix to the abstracting periodical, giving only the bibliographical references and printed only on one side of the paper ; these pages could be used for building up card-index libraries, which would lighten the physical effort expended by users.

To be entirely satisfactory, two sets of cards should be provided, for classification both by name of author and by subject.

To sum up, speed in printing the abstracts, clear classification, well defined sub-divisions and a standard method of arrangement are the chief desiderata of the users of abstracts.

It is desirable that the publication of abstracts should facilitate in some way the physical work of users and the establishment of their individual card indexes of references.

In the discussion which followed these two papers the more important points made were that the length of line is important ; some services offer abstracts printed on one side but the demand is small ; critical abstracts require competent abstractors but, when they are of the proper quality, they are valuable.

ABSTRACTS FROM THE POINT OF VIEW OF THE ABSTRACTING EDITOR

by Dr. G.M. FINDLAY.

The ways in which Abstract Journals fall short of the ideals set up by users and by librarians have already been discussed. Here it is proposed very briefly to recount certain of the difficulties met with in the organization and production of Journals of Abstracts, whether such abstracts are indicative or informative, selective and critical, or comprehensive and uncritical.

1) The first difficulty which arises is in finding out what medical and biological journals are actually being published in particular countries. New journals appear without adequate world publicity: journals which have been in abeyance as a result of world conditions are suddenly revived.

2) Even if it is known what journals are being published in particular countries it is by no means always easy to obtain these journals owing to currency difficulties and what may be mere inertia or political obstruction.

3) When the journals are obtained there is often difficulty in the case of less common languages in obtaining abstractors who know both the language and the special subject with which the communication deals.

4) The task of the abstractor is complicated by the following difficulties met with in medical and biological journals:

a) The same paper is not infrequently published in more than one journal without any indication being given of this most reprehensible practice.

b) Author's abstracts are in many cases incomplete or inaccurate. No literary journal would sell if it published reviews of new books written by the authors of the books.

c) Conclusions are drawn from data which are not statistically significant. Tables are often presented in such a way that the reader cannot deduce any results of statistical significance. Not infrequently figures or tables do not agree with what is given in words in the text of the article.

d) Difficulties arise from the use of obscure local or proprietary names for drugs or a lack of uniformity in the chemical nomenclature employed, e.g. nivaquine, an antimalarial drug. In American medical literature nivaquine is 7-chloro-4-(4-diethylamino-1-methylbutylamino)-3-methylquinoline. In French medical literature various salts of 7-chloro-4-(4-diethylamino-1-methylbutylamino)-3-methylquinoline are referred to as nivaquine M, nivaquine R and nivaquine C. However, nivaquine B refers to an entirely different compound, 7-chloro-4-(4-diethylamino-1-methylbutylamino)quinoline; usually known as chloroquine, resochin or aralen. All nivaquine now sold in France is chloroquine which is easy to manufacture.

e) The nomenclature of diseases is still chaotic. In addition different forms of classification are employed in different countries, e.g. the Russian classification of tuberculosis. The terms of classification are not usually defined.

f) Incorrect or incomplete references to previous literature are often given, thereby increasing the difficulty of assessing the true value of the work.

g) National or local abbreviations are used without explanation.

h) The varying position of the contents page in journals increases the labour of those who have to select papers for abstracting. Contents lists are placed on the outside of the front cover, on the outside of the back cover, and in almost any intermediate position.

5) Methods of overcoming these difficulties :

a) A full and correct list of all medical and biological journals published is urgently required. Its publication is overdue and has been too long delayed.

b) At six-monthly intervals sheets should be issued giving all changes in journals published.

c) Facilities should be available for the free interchange of medical and biological journals between different nations.

d) Lists of specialists with linguistic abilities should be available.

e) Editors of medical and biological journals should be urged to adopt greater uniformity and greater accuracy in the papers appearing in their journals. An agreed international chemical nomenclature should be used : proprietary names should not be allowed to multiply.

Dr. Findlay thought Unesco might help abstracting services to procure foreign journals. In connection with item (d) he added a special reference to fungicides and insecticides, and submitted two proposals :

1) that local committees of editors of abstracting services be established on a national, regional or linguistic basis, as the Royal Society of London was doing for British countries ;

2) that these local committees should keep in touch with the main regional, national or local scientific institutions, such as the Académie des Sciences in Paris, the Royal Society in London, or the National Research Council in the United States.

The problem of the use of author abstracts (or summaries) was debated with the usual arguments for and against. Dr. Flynn made the point that, in his opinion, author abstracts were useful, even if they did require editing to remove false statements and correct errors, but in medicine, agriculture and chemistry they were less satistactory and less uniform.

THE ABSTRACTING ORGANIZATION AS AN INFORMATION SERVICE.

by Dr. C. WILCOCKS.

It is hardly possible to speak on this subject without drawing on the actual experience of an existing abstracting organization; fortunately, the Bureau of Hygiene and Tropical Diseases, which it is my privilege to direct, has now a history and experience lasting 40 years, and it is on that experience that my remarks are based.

In the early years of the present century there occurred in the countries round Lake Victoria, and in some of the islands of that enormous African lake, an epidemic of trypanosomiasis of such extent and gravity that the governments of the countries concerned were compelled to adopt drastic measures to control it. This protracted epidemic revealed how comparatively ignorant of the disease the medical and veterinary departments were, and how badly needed was fundamental research. The governments therefore encouraged research, in the field and in laboratories at home. But, as is usual in science, the problems raised excited the interest of research workers in many fields, who reported the results of this work in a wide variety of journals in many countries and languages. The governments therefore also recognized the need for some organization which should collect the available information, and distribute it to research workers throughout the world. To this end an international conference was held, but agreement on the spread of information could not be reached. The British Government, however, was reluctant to let the suggestion die, and therefore created the Sleeping Sickness Bureau, one of whose functions was to publish the *Sleeping Sickness Bulletin*. This it did from 1908 onwards. This Bulletin contained summary articles, abstracts of published papers, and reviews of books relating to trypanosomiasis. It was obviously a success, so much so that in 1911 the idea was extended to a similar *Kala Azar Bulletin*, and in 1912 to a publication which should absorb the other two and deal with all the diseases conventionally known as tropical diseases. The first issue of this *Tropical Diseases Bulletin*, therefore, was published in November 1912; it has continued to appear each month up to the present time, and is now in its 46th volume. Incidentally, from South Africa, a request came in 1911 for a similar abstracting journal dealing with veterinary matters, and the Bureau published the *Tropical Veterinary Bulletin* from 1912 to 1930 when the newly founded Imperial Bureau of Animal Health took over this part of the Bureau's work. Besides abstracts grouped according to subjects, the *Tropical Diseases Bulletin* from time to time contains special articles or critical reviews in which advances in knowledge are summed up in convenient form, by experts in the subjects concerned.

The organization continued to develop in response to requests for further extensions of its scope. In the early days papers on tropical sanitation were noticed, and soon whole issues of the *Tropical Diseases Bulletin* were devoted to this subject. In 1921 a separate *Sanitation Supplement* to the *Tropical Diseases Bulletin* was issued, and in 1926 this was expanded to a full and separate

monthly publication, the *Bulletin of Hygiene*. This *Bulletin* contains abstracts and reviews, and special articles, on public health, the social services, infective diseases, industrial diseases, sanitation, water, food and nutrition, and bacteriology. It is now in its 24th volume.

When, in 1938, war with Germany seemed near, the Bureau of Hygiene and Tropical Diseases proposed that in the event of war a bulletin similar to the *Bulletin of Hygiene*, but dealing with war medicine, should be published. The suggestion was accepted, and in 1940 there appeared the first number of the *Bulletin of War Medicine*, produced and edited jointly by the Bureau and the Medical Research Council. This was modelled on the *Bulletin of Hygiene*; it continued to appear for 6 years and it fulfilled its important purpose of conveying information, abstracted from medical journals of many countries, to those who needed it in a time of great emergency.

In addition to these publications, the Bureau of Hygiene and Tropical Diseases has produced from 1931 the series of *Supplements* to the *Tropical Diseases Bulletin* which contain synopses of the annual reports of the medical departments of the British Colonies, and the first of a projected series of Review Monographs, this one on Trypanosomiasis and Tsetse Flies.

Certain other services afforded by the Bureau will bear mention. From 1943 onwards there has been active collaboration between it and the Commonwealth Mycological Institute for the production of the annual *Annotated Bibliography of Medical Mycology*. Most of the work on this publication, which is in fact a volume of short abstracts, is done by the Director of the Commonwealth Mycological Institute and his staff, and the contribution made by the Bureau of Hygiene and Tropical Diseases consists chiefly in bringing to his notice papers suitable for abstracting, which we meet in our daily scrutiny of medical literature. The Bureau also helps financially. The association has been most friendly and certainly most helpful to us.

For many years the Bureau has supplied the titles of all papers chosen for abstracting in the field of industrial hygiene, to the Director of the Department for Research in Industrial Medicine of the Medical Research Council, who is thus given early information of current work in this subject. The same is true (but more recently) of another Medical Research Council unit whose field of research bears on subjects within the scope of the Bureau. Again, for many years all the abstracts on leprosy published in the *Tropical Diseases Bulletin* have been collected and reprinted in a separate booklet twice each year for the benefit of the British Empire Leprosy Relief Association. During the past 10 years a series of annual summaries of the work reported in the *Tropical Diseases Bulletin* of the previous year, on each of 9 principal tropical diseases, has been prepared, and these reviews have been published *seriatim* in the *Tropical Diseases Bulletin*. They are now being translated into French by the staff of the journal *Médecine Tropicale* (Marseilles), and, with our willing consent, are being printed in that journal.

Finally, abstracts from our *Bulletins* are often reprinted, by agreement, in other abstracting journals — for instance *Public Health Engineering Abstracts* (U.S.A.), the *Journal of Industrial Hygiene and Toxicology* (U.S.A.), the *Veterinary Bulletin* (Great Britain) and others. We are very glad that this practice continues, and we occasionally adopt it ourselves when we borrow an abstract from the *Review of Applied Entomology* or the *Journal of the American Medical Association*. But we do this with discretion because we know very well that the abstracts written for other journals are intended for their own readers and that they may not always stress just those points we need for our readers. Rather than borrow the abstracts, therefore, we tend

to borrow the original papers and have them abstracted by our own people.

The Bureau has also served, throughout the years of its existence, as a source of information to the multitude of private persons who ask for it either in person or by letter.

In the Bureau the editors of the *Bulletins* themselves look through the large number of medical journals received, and choose the papers suitable for abstracting. The titles of these papers are sent to the appropriate abstractors, and the abstracts, when received, are edited for accuracy by comparison with the originals, for suitability and style, and for uniformity of conventions. They are then grouped according to subjects, and printed.

The reason why I have related this brief outline of the history of the Bureau, which is one of the oldest medical abstracting services in the world, is that it leads to the points I wish to make. As follows:

1. An abstracting service should have a clear idea of the needs of the readers of its publications. The Bureau was created to answer a specific need, and each addition to its work has been made as a result of the realization of a need. The Bureau has therefore restricted its activities to certain branches of medicine, but within those fields it has attempted to record the important work published throughout the world. The Bureau has never claimed, or desired, to abstract or record every paper written on its subjects; it has always been selective and has deliberately declined to review papers of doubtful value. Moreover, the Bureau has attempted to provide the kind of abstracts its readers need, realizing that many of them can hardly hope to consult the original papers.

2. Abstracts should faithfully reflect the sense of the original papers, and should be correct in detail. The selection of points for mention in an abstract is, in our opinion, most efficiently done by an abstractor who is himself versed in the work reported, and the Bureau has always obtained the services of men and women of high scientific attainments for this work. Critical comments on the work recorded, when made by such abstractors, are often of the greatest value, and are encouraged by the Bureau. It has been our experience that abstractors rarely make comments or criticisms unless these are obviously justified, and that the criticisms are not trivial. Abstractors of high scientific standing are well aware of the dangers inherent in criticism, especially the danger of over-stressing a debatable opinion, and they are usually scrupulous to give an author his due. The readers, of course, are usually competent to assess the merits of criticism, and glad of the opportunity to do so.

3. Abstracts can never be completely up to date, and accuracy rather than promptness should always be a first consideration; but it is also the function of an abstracting service, if it is to have lasting value, to cover its field adequately and continuously. A reader who wishes to inform himself on any subject covered by the abstracting journal should be confident that he will be able to find an account of previous substantial work on that subject in the earlier issues of the journal, and that later work will be abstracted in future issues. This does not mean that an abstracting service should not embark on new subjects, but it does mean that the editor must be alert to sense those subjects which promise fruitful development. Continuity of interest entails continuity of editing. It is the function of the editor to choose the material, and if this is not done with care and attention, the service will suffer.

4. At the Bureau we attempt, in presenting the material, to adopt a style which will create and maintain interest. We deprecate too telegraphic a style, and we do not aim to provide merely a title and a few notes to indicate the contents of the paper. We do not want our abstracts to be merely library tools to be looked up on special occasions, but rather to invite reading because of

their own intrinsic interest, as literature to which people will turn for the pleasure of keeping themselves informed, even on subjects not particularly their own.

Dr. Wilcocks added that his service willingly allowed others to use its abstracts and that he himself was a regular borrower. His service preferred the decentralized system of abstracting, as described for the Commonwealth Agricultural Bureaux by Sir Herbert Howard. His Bureau was prepared to encourage small countries to publish translations of its abstracts as proposed by Professor Verzar.

Dr. Leitch and Sir Herbert Howard said the Commonwealth Agricultural Bureaux exchanged their publications for foreign journals and saw no objection to the reprinting of their abstracts in other languages provided the privilege was not abused. The selling prices of their publications were far below the cost of production.

Other speakers whose services were not subsidized in respect of overhead costs asked whether international organizations could provide grants to assist distribution. Dr. Howard-Jones described what is already being done by WHO to distribute publications and Dr. Zhukova what Unesco had done to help war-devastated countries to rebuild libraries. FAO was also working on this question.

In reply to a question, it was stated that Dr. Wilcocks and Dr. Leitch both saw to it that fuller abstracts are provided of papers in uncommon journals and the less familiar languages.

Dr. S.V. Larkey (U.S. Army Medical Library) explained that before the Unesco Preparatory Conference recommended the amalgamation of the *Index Catalogue* of the Surgeon-General's Library and the *Quarterly Cumulative Index Medicus* of the American Medical Association, these two publications and the *Current List of Medical Literature* were already under consideration. In July 1948 the Army Medical Library appointed an Advisory Committee with Dr. Lewis H. Weed, Chairman of the Division of Medical Sciences, National Research Council, as Chairman, to examine the need for and uses made of indexes of medical literature.

An enquiry by the Army Medical Library at the Welch Medical Library, Johns Hopkins University, was in progress into existing indexing and abstracting services and the use made of them.

In response to a protest against the amalgamation of the *Index Catalogue* and the *Index Medicus* because they served different purposes, Dr. Viets said that nothing had been decided. The purposes served were entirely different; the one, although it was at present in arrears, indexed current literature; the other was historical in intent, reviewing twenty years' work at one time. The lapse into arrears of the *Index Medicus* had been responsible for the appearance of new indexes such as the *Cancer Current Bibliography*.

Decisions were made on outstanding items of business; the first that the abbreviations in the proposed World List of Medical and Biological Journals should be based on those in the *World List of Scientific Periodicals* and that the sponsors of the *World List of Scientific Periodicals* should be consulted about abbreviations for new periodicals so that the two Lists could be kept in line; the second that a polyglot glossary of medical and biological terms should be prepared as soon as possible.

Mrs. Cunningham and Professor Woerdeman were appointed to represent the Committee at the International Conference on Science Abstracting.

The future of the Committee was discussed at some length in relation to the International Conference and to the execution of the proposals for work it had already made. With the assurance that a permanent Secretariat was possible, within Unesco, to do such work or arrange for it to be done, the Committee resolved to continue on a permanent basis. It was left to the Executive Committee to decide whether further extension of membership was desirable.

At its last session, the Committee appointed as members of the Executive Committee: Dr. H. Clegg, Mrs. E.R. Cunningham, Dr. G.M. Findlay, Professor L. Justin-Besançon, Dr. L. Lampitt, Dr. I. Leitch, Professor P. Lépine, Mrs. M. Lwoff, Professor R.V. Talice, Dr. H.R. Viets and Professor M.W. Woerdeman.

Statements were made by Dr. Wilcocks and Professor Lépine on the resolu-

tion approving the use of Bergey's nomenclature of micro-organisms and the Committee was urged to refer the matter to the next meeting of the International Association of Microbiologists. This was agreed and the draft resolutions were formally approved.

The Committee will not meet again till 1951.

EXECUTIVE COMMITTEE

FOURTH MEETING, 28-29 OCTOBER 1949.

Present :

Chairman :	Dr. Hugh CLEGG, *British Medical Journal*, British Medical Association.
Members :	Prof. M. W. WOERDEMAN, *Excerpta Medica.*
	Mrs. M. LWOFF, *Bulletin de l'Institut Pasteur.*
	Dr. I. LEITCH, Commonwealth Bureau of Animal Nutrition.
WHO representative :	Dr. N. HOWARD-JONES, Director, Division of Editorial and Reference Services.
Secretariat :	Dr. I. M. ZHUKOVA, Natural Sciences Section.

The small meeting was called to decide details of the preparation of the World List of Medical and Biological Journals (p. 51) and to consider Mrs. Cunningham's report on the International Conference on Science Abstracting (p. 85). The main decisions on the List may be summarised as follows.

The List of medical periodicals should be as complete as may be, the work to be partitioned on a regional basis. The British Medical Association would be responsible for periodicals in Britain and the British Commonwealth, Professor Woerdeman for European journals and Dr. Fishbein, American Medical Association, for North America. For Latin America, the Middle East, the Far East and other areas the help of regional Unesco and WHO offices and of local medical associations would be requested.

The List of biological periodicals, since it was neither intended nor possible to cover the whole of biology, would be confined in the first place to such of the journals already covered by the abstracting services represented on the Committee as contribute material of medical interest.

Annual reports, such as hospital reports, would be included if they contained either results of research or accounts of work in progress, but not if they were mere guidebooks or financial statements.

The first List would include the names of important periodicals that had recently ceased publication, changed their names or been incorporated in joint publications. In view of the historical importance of many " dead " journals, a special supplement or supplements for them would be prepared later.

The details of presentation of the List were redefined in accordance with the June agreement (p. 51) modified, after discussion of Resolution 14.3 of the International Conference on Science Abstracting (p. 89) to include names of publishers and places of publication, which was held to meet the resolution (mailing address) in spirit if not in letter.

The List should be alphabetical with numbers. The Secretariat was asked to provide information on existing systems of transliteration. If the United Nations used one particular system, that would be used for the List ; if not,

the rules of the *Library of Congress* and the *World List of Scientific Periodicals* should be considered ; introductory and explanatory matter and headings of sections would be in three languages, English, French and Spanish. The List would be indexed by language ; by country of publication and by subject, with the numbers as references.

Supplements, giving revisions and additions, would be issued yearly and the entire list would be reprinted after five years.

The regional lists should be assembled at one centre. On the motion of Dr. Howard-Jones, it was recommended to Unesco that Mr. L.T. Morton, Librarian to the British Medical Association, be appointed to prepare the list. Work should begin as soon as possible.

An Editorial Committee to include Dr. Clegg, Professor Justin-Besançon and Mrs. Lwoff would supervise the work and prepare the textual material.

The Secretariat proposed that a report of the work of the Committee from the beginning should be published in English, French and Spanish ; the proposal was accepted and Dr. Leitch and Mrs. Lwoff were nominated as editors for the English and French editions.

After discussing Mrs. Cunningham's report and Professor Woerdeman's supplementary comments on the International Conference on Science Abstracting and its resolutions (Annex 6), the Committee defined its position to Resolution 8.2. It was prepared to act as a "subject" committee for medicine and biology ; to co-operate with other committees appointed to deal with other subjects and to send representatives to a co-ordinating committee ; all without loss of identity or autonomy.

The meeting concluded with a short discussion on the proposal (p. 51) to publish a list or lists of standard abbreviations for use in medical and biological journals. The Secretariat will report on ways and means to the next meeting of the Executive Committee.

ANNEX 6

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION
INTERNATIONAL CONFERENCE ON SCIENCE ABSTRACTING

UNESCO HOUSE, PARIS 20-25 JUNE 1949.

FINAL ACT.

The International Conference on Science Abstracting, which has met in Paris, under the auspices of Unesco from 20 to 25 June 1949

Strongly convinced of the importance which the pure and applied sciences have for the well-being, happiness and peace of mankind ;

Convinced also of the important place of abstracting and indexing services in the chain of communication which is essential to the life of science ;

Keenly aware at the same time of the inadequacies of present overall arrangements for the abstracting and indexing of scientific literature — inadequacies which constitute major impediments to the work of scientists in certain fields of research and in many countries ;

Appreciating, finally, the opportunities for the improvement of these arrangements through co-operative international action under the auspices of Unesco ;

has adopted the following Final Act :

1. *Present Situation.*

There are many hundred journals containing abstracts.
Some cover a wide field, others specialize. There is some duplication, yet many gaps exist. Scientists in some countries do not have direct access to enough abstracts. Information published in some languages is abstracted many times over, while that in others is insufficiently covered.

2. *Objectives.*

2.1. The Conference sees the objectives of abstracting in science to be :

a) Complete coverage by abstracts of all papers containing new information ;

b). Adequate access to abstracts, both for current information and back reference, for all scientists in all countries ; and, in order to attain these objectives, makes the following recommendations :

3. *Free Interchange of Scientific Literature.*

3.1. Since the complete coverage by abstracts of all new scientific information depends on the free interchange of scientific literature among different countries, it is recommended that Unesco continue its efforts to promote this free interchange.

4. *Gaps.*

4.1. It is recommended that immediate consideration be given to the extension

of listing, abstracting and indexing to fields in pure and applied science not now covered, in particular in agriculture and applied biology.

4.2. In addition to the usual abstracts there is a need for information about new scientific and technical apparatus and equipment, including information contained in patent specifications and industrial publications. It is therefore recommended that abstracting services provide separate sections in their journals for this purpose, where this is not already done, or make arrangements for indicating this information.

5. *Languages.*

5.1. It is recommended that in general, consideration be given to the publication of abstracts in languages additional to those in which they are available at present; in particular, attention be urgently given to agricultural abstracts for countries where agricultural problems are acute.

6. *Co-operation among Abstracting Services.*

It is appreciated that many abstracting agencies and their editors are doing their best for their particular readers. Many have made a contribution to their field of science which is of the highest importance and it is right that this should be their first duty. More and more, however, one branch of science needs help from others. The development of co-operation between abstracting agencies will, therefore, enhance the value of abstracts not only to science as a whole, but also to the different sciences.

6.1. It is therefore recommended that abstracting agencies co-operate for the improvement of their services by extending agreements for the exchange of abstracts and of original material for abstracting, and by agreeing on the subject field and services of each.

Such co-operation has been increasing; formal action in two directions has been particularly studied by the Conference:

The Abstracting Services Consultative Committee, covering the United Kingdom and the interests of the Commonwealth, has recently been set up in London. This embraces the whole field of science.

The Unesco Co-ordinating Committee on the Abstracting and Indexing of Medical and Biological Sciences has, after several preliminary meetings, now been constituted on a permanent basis.

It is concluded that it will be in the interest of science if similar action is taken in other regions and for other subjects. As conditions and requirements vary widely from country to country and subject to subject, the following recommendations for regional and subject committees are suggested as a guide and must be interpreted according to regional and special needs.

7. *Regional Committees on Abstracting.*

7.1. It is recommended that Unesco approach, through the National Commissions of its Member States or other suitable channels, scientists and abstracting agencies in each country with a view to constituting standing committees on science abstracting which would be either national or regional depending upon agreement among several countries. These committees should operate on a voluntary basis and the cost should be kept low. They should be free to correspond directly with each other, with Unesco, with the international scientific unions and with any other bodies they choose.

Their primary function would be to study abstracting with a view to ensuring adequacy. In particular their aims should be that :

a) Scientific publications published in their own region are adequately listed and abstracted ;

b) Scientists in their own region are adequately supplied with abstracts of papers published in foreign countries ;

c) The recommendations of this Conference are considered and implemented where possible.

8. *Subject Committees.*

Scientists and scientific publishing bodies may find it desirable to set up, in co-operation with regional or national committees where such exist, subject committees on an international level to co-ordinate abstracting in the major fields of pure and applied science. At a later date it may be found desirable to establish committees for more specialized fields.

8.1. It is therefore recommended that Unesco invite appropriate international bodies including the appropriate international scientific unions, and, in the case of agriculture and applied biology, the Food and Agriculture Organization, to co-operate with Unesco in setting up Subject Committees of users and publishers of abstracts of :

a) Physics and Engineering ;

b) Pure and Applied Chemistry ;

c) Agriculture and Applied Biology;

to deal with abstracting problems at the international level, and that Unesco offer these new committees facilities similar to those already provided for the Co-ordinating Committee for the Abstracting and Indexing of Medical and Biological Sciences.

8.2. The Conference invites the Co-ordinating Committee on the Abstracting and Indexing of Medical and Biological Sciences to become one of the Subject Committees whose establishment is recommended in the foregoing resolution, and requests it to examine with Unesco how this change can be realized.

9. *Provisional Advisory Committee.*

It is recommended that :

9.1. The small Provisional Advisory Committee resulting from the election held by this Conference should advise Unesco in the period during the formation of national, regional and subject committees with regard to the implementation of the recommendations of this Conference. It should not function for more than one year after the publication of the report of the Conference;

9.2. Any succeeding committee that may be necessary be convened by Unesco in consultation with national, regional and subject committees.

10. *Abstracting Journal for Physics.*

It is recommended that :

10.1. Consideration be given to the proposal for the publication, under the auspices of a single internationally controlled organization, of a single international general abstracting journal for physics, both pure and applied, including astrophysics and the geophysical sciences, and for such branches of engineering as it may be appropriate to include;

10.2. A committee composed of representatives of the organizations responsible for the existing general abstracting services in this field, and of the interested international scientific unions be convened to carry this proposal into effect, if it deems it desirable, by such means as giving existing abstracting journals a more international character ;

10.3. This committee give attention to the proposals that the abstracts presented in the journal be mixed, some in English, others in French ; and that it be in sections which might be published separately, while leaving to the appropriate time the definition of these sections and of the frontier zones for which only selected abstracts would be published.

11. *Synopses.*

It is recommended that :

11.1. Each issue of a scientific journal include synopses, in English or French at least, of all original articles contained in it ; that the editor-in-chief of the journal accept responsibility for the adequacy of these synopses, whether or not prepared by the author ; and that the journal state in each issue that the republication of all its synopses in whole or in part is authorized ;

11.2. Synopses, as described in the foregoing resolution, be used as abstracts whenever an abstracting service considers this practicable, with the aim of reducing the delays and costs of abstracting ;

11.3. A standard guide for the preparation of such synopses be provided for the use of editors and authors. (The "Guide for the Preparation of Synopses" prepared by the Abstracting Services Consultative Committee and issued by the Royal Society, Burlington House, London, W.1., is suggested as a basis for discussion.)

12. *Presentation of Abstracts and Scientific Literature.*

It is recommended that :

12.1. The title of each scientific article be descriptive but concise ; further that, if the paper is not the publication of an original work, editorial symbols be provided to indicate whether it is a review, discussion or criticism of already published work, or a technological application of basic data ;

12.2. In order to facilitate the interchange and use of abstracts, all abstracting services follow the same bibliographical rules;

12.3. Abstracting services study the draft recommendations of Technical Committee 46 (Documentation)[1] of the International Organization for Standardization (ISO), co-operate in improving them, and in the event of their approval by ISO, adhere to them as far as practicable ; further that Unesco call these recommendations to the attention of scientific publishing bodies with a view to their adoption ;

12.4. Abstracts should not contain any criticism either favourable or unfavourable.

13. *Directory of Indexing and Abstracting Services.*

13.1. It is recommended that Unesco promote the publication, at least every

1. Address : Willem Witsenplein 6, 's Gravenhage, Nederland.

five years, of a directory of indexing and abstracting services, accompanied by suitable indexes. For each service it would be desirable to record the title, fields of subject interest, type of service with an indication if the publication contains only references and abstracts, language or languages used, publishing organization, mailing address, frequency of publication and price.

14. *Lists of Scientific Periodicals and of Periodicals Currently Abstracted.*

It is recommended that :

14.1. Each abstracting service publish regularly a list of periodicals which it abstracts, specifying if each periodical is abstracted wholly or partly;

14.2. In addition, there be prepared at intervals of approximately five years consolidated lists of periodicals which have been abstracted by the various science abstracting services in the previous period ;

14.3 There be published on a regional or national basis, lists of current scientific periodicals and serial publications of the region ; that the lists be prepared in a manner permitting continual revision ; that they be made available internationally for preparation of consolidated world lists or for the preparation of subject lists ; and that for each periodical there be recorded the title, language or languages used, standardized abbreviation, publisher, mailing address, frequency of publication and price ;

14.4. Unesco encourage the publication of a comprehensive world list of the scientific periodicals which ceased publication before the year 1900.

15. *Lists of References and Tables of Contents.*

15.1. It is recommended that the literature of each field of science, divided if necessary into geographical or linguistic regions, be covered by periodically published lists of references or tables of contents. These lists of references or tables of contents would be particularly valuable if they were published promptly and covered their fields completely.

16. *Regional Bibliographical Centres and Depositories for Published and Unpublished Works.*

It is recommended that :

16.1. Regional bibliographical centres, services or facilities be established in those countries where such do not already exist to serve in the locating of periodicals, books, theses and laboratory reports obtainable within the region, and also that such centres, services or facilities be equipped for the production and distribution of photocopies (full-scale or microfilm);

16.2. Suitable regional depositories be provided for the unpublished portions of important articles which are not suitable for publication in their entirety owing to their length, number of illustrations, tables, and mathematical or other symbols ; that these depositories be prepared to furnish photocopies of such articles (full-scale or microfilm) ; further that the published abbreviation of the paper and any abstract of it indicate where full text is deposited.

17. *Copyright.*

17.1. It is recommended that, because copyright often influences the effective dissemination of scientific information, the "Fair Copying Declaration" and "Notes on the Fair Copying Declaration" of the Royal Society, London, be

brought to the attention of all scientific publishing societies and organizations.

18. *Terminology and Nomenclature.*

It is recommended that :

18.1. Adequate bilingual or polyglot dictionaries be provided for all fields of science and technology ; and that they take into account national variations in usage and, if possible, be illustrated ;

18.2. Unesco promote, in collaboration with the international scientific unions or other appropriate bodies, the standardization of terminology and the publication at appropriate intervals of lists of new terms in science and technology with definitions and translations in various languages :

This would greatly facilitate the preparation of bilingual and polyglot dictionaries.

19. *Classification and Mechanical Selection.*

It is recommended that :

19.1. To facilitate the interchange, storage, and use of scientific knowledge, Unesco support the development of a standardized classification and that abstracting services give their co-operation to such development;

19.2. In view of the urgent need for detailed evaluation of the various systems which have been proposed for chemical notation, both on account of their primary use in recording chemical data and their possible application to the indexing of abstracts, the International Union of Chemistry and other organizations engaged in this work, be notified of the importance attached to the problem by this Conference ;

19.3. Unesco bring those concerned with the development and use of mechanical or electrical devices for the selection of documents into touch with each other, and convene a small conference of experts to lay the foundation for a standardized international coding for use with such devices.

20. *Liaison through Unesco.*

20.1. It is recommended that Unesco act as a clearing-house, to provide a channel of liaison, and to facilitate the implementation of the resolutions of this Conference.

21. *Finances.*

21.1. Since abstracting is very important for the dissemination of scientific information, the attention of Unesco, WHO and FAO is drawn to the resolutions of this Conference and they are asked to consider the provision of the financial means needed to implement the recommendations of this Conference and also to provide for better distribution of subjects which are the special concern of these Agencies, to areas where the application and development of science is being retarded by lack of abstracts.

RESOLUTIONS ADOPTED AT THE CONFERENCE

ON 3-4 OCTOBER 1947.

1. It is desirable, on a co-operative basis, to provide a scientific medical information service by abstracting current publications at the lowest possible cost to the consumer.

2. The co-operation of abstracting services should be founded on their being non-profit-making.

3. The Conference welcomes the recommendation of the representatives of *Excerpta Medica* that this organization should consider a scheme whereby no profit should be made by *Excerpta Medica* from the abstracting service provided.

4. An abstract should give enough information to the reader to enable him to decide whether he should consult the original article and it should include the principal data of the article ; in addition, abstracts should be prepared to the special requirements of the reader.

5. The duplication of specialist abstracting journals is undesirable.

6. A comprehensive abstracting service, in the sense of abstracting all articles of all journals, is impossible and undesirable.

A medical abstracting service should be comprehensive in the sense that it surveys the whole of world medical literature and that it includes a survey of all the pertinent literature of sciences having a bearing on medicine ; and

An attempt should be made to secure the co-operation of abstracting services of non-medical sciences to indicate to the medical services articles of possible medical interest.

7. *Excerpta Medica* should be asked to consider the question of discontinuing certain special sections already covered by *Biological Abstracts* and *British Abstracts*. *Excerpta Medica* should be supplied by these other organizations with abstracts on subjects of common interest so that some of them could be included in the medical sections retained.

8. *Biological Abstracts* should be asked to consider revising its scope with a view to excluding material appropriately covered by other organizations.

9. *Biological Abstracts* and *British Abstracts* should be asked to explore the possibility of collaboration, especially in relation to the exchange of abstracts.

10. *Excerpta Medica* and *World Abstracts* should explore the possibility of collaboration by the exchange of abstracts.

11. *Biological Abstracts* and *British Abstracts* should consider co-operating through the use of the same national professional committees which provide abstracts of articles appearing in the journals of their own countries.

12. *Excerpta Medica* and *World Abstracts* should consider co-operating on the lines suggested in the above recommendation.

13. Unesco is asked to enquire into the demands for abstracting services in languages other than English, and into existing facilities for translation.

14. Unesco is asked to promote the preparation and publication of comprehensive multilingual dictionaries of the biological and medical sciences.

15. An Interim Co-ordinating Committee should be set up under the auspices of Unesco with the power to co-opt and invite. Representation should be limited

to non-profit-making organizations, and the work of the abstracting services admitted to membership should be international in scope. The suggested composition of the Committee is :

1) Representatives of *Biological Abstracts*, *British Abstracts*, *World Abstracts* and *Excerpta Medica*, the last named to be a member when it becomes a non-profit-making organization. Until this matter has been settled, *Excerpta Medica* should be invited to attend as observer.

2) Unesco — as secretariat and convener.

3) The World Health Organization Interim Commission.

4) The International Federation for Documentation.

5) The International Federation of Library Associations.

6) The Medical Library Association.

A meeting of this Committee should take place in the spring of 1948.

16. The presence of an expert on copyright would be welcomed to give guidance on the question of copyright in relation to abstracts.

17. The initiation of further conferences by Unesco with a view to overall development in the field of biology is favoured.

18. The National Research Council should be warmly thanked for their constructive suggestions in the document laid by Unesco before the Conference, which were most helpful in guiding its deliberations.

19. Recognizing the great services the *Index Catalogue* of the Surgeon-General's Library and the *Quarterly Cumulative Index Medicus* have contributed to medical science, the Conference nevertheless would welcome any step towards the amalgamation of these services so that the information they provide may be even more complete and be made available more quickly to readers.

20. The Conference, as a result of wide discussion during two days of the problems of medical abstracting on an international basis, was impressed by the prospect that such activity would conduce to world peace and understanding by the dissemination of information among professional groups in the several countries of the world.

RESOLUTIONS ADOPTED BY THE INTERIM CO-ORDINATING COMMITTEE ON MEDICAL AND BIOLOGICAL ABSTRACTING

ON 5 AND 6 APRIL 1948.

1. The Minutes of the October Conference were approved.

2. The World Health Organization and the Food and Agriculture Organization should be invited to join Unesco in sponsoring the activities of the Interim Co-ordinating Committee on Medical and Biological Abstracting.

3. The following agencies should be invited to become members of the Committee :

a) Bureau of Hygiene and Tropical Diseases ;

b) Commonwealth Bureau of Animal Nutrition ;

c) One representative of the Medical and Biological Abstracting Services in France ;

d) The American Medical Association ;

e) *International Abstracts of Surgery ;*

f) *Chemical Abstracts.*

4. The Executive Committee to be : Dr. Clegg, Mrs. Cunningham, Dr. Lampitt, Professor Woerdeman, Dr. Howard-Jones, Dr. Findlay.

5. Representatives of *Excerpta Medica* should be accepted as full members of the Committee, on the assumption that this organization will finally become non-profit-making.

6. Unesco should be asked to inform the Control Commissions in Germany of the activities of the Interim Co-ordinating Committee on Medical and Biological Abstracting, composed of representatives of non-profit-making abstracting services ; and of the existing abstracting services in the medical and biological sciences. Unesco should also be asked to inform the Control Commissions that the resumption of publications of German abstracting journals in the field of the medical and biological sciences has been brought to the attention of the Interim Co-ordinating Committee ; and to draw the attention of the Control Commissions to the unanimous resolution adopted by that Committee : "The duplication of specialist abstracting journals is undesirable".

7. Unesco should be requested that working-papers for Committee meetings should be translated into the 5 official United Nations languages.

8. With regard to Resolution No. 5 of the October Conference stating that "duplication of specialist abstracting journals is undesirable", it was agreed that a general statement should be drawn up and that Unesco should be requested to circulate this statement to such journals as *Nature*, *Science*, *Lancet*, *British Medical Journal*, *Presse Médicale*, *Journal of Documentation*, *etc.*, and to all the Unesco National Commissions.

9. A good method to ensure that an abstracting service completely surveys its subject field is to exchange journals or final page-proofs with abstracting journals covering neighbouring fields.

10. Unesco should be asked to request the National Commissions to review their national nomenclatures in the medical and biological sciences, in relation to accepted international standards.

11. Unesco should be asked to consider approaching a publisher with a view to the publication of polyglot glossaries of the medical and biological sciences.

12. It was decided not to attempt to promote the standardization of instructions from Abstracting Services to Abstractors.

13. It was decided to recommend the adoption of the abbreviations of names of journals given in the *World List of Scientific Periodicals.*

14. It was decided that abbreviations not readily recognizable internationally should be avoided in abstracting journals unless each has been defined at first mention or a key is provided in the abstracting journal.

15. It was decided that it is desirable to give in parentheses the metric equivalents of all non-metric measures.

16. It was recommended that the nomenclatures of Bergey's *Determinative Bacteriology*, 1948 edition, should be universally adopted for microbiology.

RESOLUTIONS ADOPTED BY THE EXECUTIVE COMMITTEE OF THE INTERIM CO-ORDINATING COMMITTEE ON MEDICAL AND BIOLOGICAL ABSTRACTING

ON 15-16 OCTOBER 1948.

1. As the Interim Co-ordinating Committee on Medical and Biological Abstracting has resolved that the duplication of specialist abstracting journals is undesirable, it hopes that, before undertaking abstracting of medical literature, the World Health Organization will consult the Committee.

2. The Interim Co-ordinating Committee recommends that Unesco and WHO should consider jointly sponsoring the preparation and publication of a World List of Medical and Biological Periodicals with standard abbreviations of their titles.

3. The Interim Co-ordinating Committee on Medical and Biological Abstracting resolves that, to make this Committee more representative, Biomedgiz be invited to send a delegate to the next meeting.

RESOLUTIONS ADOPTED BY THE INTERIM CO-ORDINATING COMMITTEE ON MEDICAL AND BIOLOGICAL ABSTRACTING

ON 1-4 JUNE 1949.

1. The Committee asks that Unesco publish a List of Medical and Biological journals with appropriate abbreviations, which should contain symbols indicating which abstracting services cover the particular journal, the abstracting services to be listed being those represented at this meeting.

2. The Committee asks that Unesco collect information on the abbreviations and symbols used in medical and biological literature already approved or published and, having collected this information, Unesco should consider its publication in a form suitable for the use of abstracting services, editors and scientists.

3. On the basis of the evidence presented in the papers of Professor Woerdeman, Dr. Leitch, Professor Lépine and Mrs. Cunningham, it was agreed that, both from the viewpoint of consumers and abstracting services, standardization of bibliographic form for abstracts was desirable. It was agreed that the suggestions in Dr. Leitch's communication (p. 59) should be accepted as a basis for standardization. These conclusions were :

1) Bibliographic detail should be as complete as possible.

2) Every abstract journal should give the information set out below in the following order :

a) Author(s) surname(s) and full *initials*, with any further identification mark, such as Jr., that may be necessary.

b) The full title of the paper, as in the original or in a transliteration. If the the title is shortened, this should be indicated by a symbol.

c) A translation of the title, as nearly accurate in sense as possible.

d) The name of the journal ; year of publication ; volume, and, if necessary on account of pagination, the part number ; first and last pages of the paper.

e) Place(s) where the work was done.

4. This Conference approves the setting up of local advisory committees on abstracting composed of editors and other representatives of abstracting agencies. (The term "local" is taken to imply national, regional or linguistic, as may be most convenient.)

5. The Committee requests Unesco to continue its efforts to promote the free interchange of medical and biological journals among different countries.

6. Editors of medical and biological journals should be urged to adopt greater uniformity in terms used and greater precision in the papers appearing in their journals. Where proprietary or local names are used, scientific equivalents should also be given if they exist.

7. It is recommended that the metric system be used for weights and measures and the centigrade system for temperatures in medical and biological communications.

8. It is resolved that the Interim Co-ordinating Committee on Medical and Biological Abstracting, having proved its usefulness, be continued on a per-

manent basis ; it shall be called the Co-ordinating Committee on Abstracting and Indexing of Medical and Biological Sciences. It shall have an Executive Committee. A meeting of the full Committee shall be held annually or biennially at the discretion of the Unesco Secretariat and the Executive Committee.

9. The Co-ordinating Committee on Abstracting and Indexing of Medical and Biological Sciences recommends that Unesco should request WHO and FAO to continue to co-operate in the work of the Committee.

10. Whereas certain countries are in need of abstracts of scientific literature, especially on nutrition, and are unable to produce them, it is recommended that Unesco should ask FAO and WHO to consider jointly means by which this handicap can be removed.

11. In view of the absence of an adequate nomenclature for micro-organisms, the Committee recommends to the International Association of Microbiologists that its Nomenclature Committee should study the subject.

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