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ABSTRACT

The proceedings of the 1972 full board meeting of the International Council of Scientific Unions Abstracting Board (ICSU AB) held in Ustaoset, Norway are contained in this volume. The first part of the Proceedings is a detailed description of the activities of the Board. Activities of ICSU AB Member Unions and Member Countries in all aspects of scientific and technical information are described in the second part. The third part records the most recent developments in the activities of the ICSU AB Member Services (the largest abstracting and indexing services all over the world). The fourth part comprises reports from the most important international organizations active in scientific and technical information. In the fifth part the proceedings of a Round Table on "Education of Scientists in the Use of Information" are recorded. Papers presented at a special session on the indexing of primary journals are given in the sixth part. Finally, the seventh part is an outline of another special session which was devoted to an interchange of views about marketing of secondary information services. (Proceedings of the 1970 and 1971 meetings are ED 046 465 and ED 060 854.) (Author/SJ)

PROCEEDINGS OF THE FULL BOARD MEETING

JUNE 1972

USTAOSET, NORWAY

ICSU AB

BUREAU DES RÉSUMÉS ANALYTIQUES DU CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS ABSTRACTING BOARD

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F O R E W O R D

The 1972 Full Board meetings of the ICSU AB were held in Ustaoset, Norway, at the kind invitation of Professor FAEGRI, General Secretary of the International Union of Biological Sciences.

The first part of the Proceedings is a detailed description of the activities of the Board.

Activities of ICSU AB Member Unions and Member Countries in all aspects of scientific and technical information are described in the second part.

The third part records the most recent developments in the activities of the ICSU AB Member Services (the largest Abstracting and Indexing Services all over the world).

The fourth part comprises reports from the most important international organizations active in scientific and technical information.

In the fifth part the proceedings of a Round Table on "Education of Scientists in the Use of Information" are recorded.

Papers presented at a special session on the indexing of primary journals are given in the sixth part.

Finally the seventh part is an outline of another special session which was devoted to an interchange of views about marketing of secondary information services.

S E S S I O N 1 :

ACTIVITIES OF THE ICSU AB

Chairman : F.A. STAFLEU

1.1. REPORT FROM THE EXECUTIVE COMMITTEE

by J. POYEN
General Secretary, ICSU AB

The Executive Committee noted with deep regret that President Byron Riegel was still too unwell to attend the Ustaoset meetings. In these circumstances they unanimously elected Professor F.A. Stafleu to be acting President until Byron Riegel has recovered.

I) ADMISSION OF NEW MEMBERS

a) Member Countries

The Executive Committee considered an application for Membership as Member Country from France. The Executive Committee warmly welcomed this application and recommended to the Full Board that it be approved. The Full Board decided unanimously to approve this application and adopted the following Resolution :

RESOLUTION 2.

The Full Board has considered an application for Membership as a Member Country from France at level 2 of dues. The Full Board warmly welcomes this application and approves it unanimously.

b) Member Services

The Executive Committee considered applications for Membership as Member Services from the American Institute of Physics, from Excerpta Medica and from National Library of Medicine. The Executive Committee warmly welcomed these applications and recommended to the Full Board that the applications be approved. The Full Board decided unanimously to approve these applications and adopted the following Resolutions :

RECOLUTION 3.

The Full Board has considered an application for Membership as a Member Service from the American Institute of Physics. The Full Board warmly welcomes this application and approves it unanimously.

RESOLUTION 4.

The Full Board has considered an application for Membership as a Member Service from Excerpta Medica. The Full Board warmly welcomes this application and approves it unanimously.

RESOLUTION 5.

The Full Board has considered an application for Membership as a Member Service from the U.S. National Library of Medicine. The Full Board warmly welcomes this application and approves it unanimously.

II) POSITION STATEMENT

The Full Board adopted the following Resolution :

RESOLUTION 9.

ICSU AB reaffirmed its support of the UNISIST concept and asked the Executive Committee to prepare an appropriate statement to be transmitted to bodies concerned.

III) NEXT MEETINGS

1973 Board meetings will be held in London from July 6 to July 13.

July 6 and 7 will be devoted to a joint meeting with Editors of Primary Publications. This meeting is thought of as being substantially larger than those which have been held so far and of offering an opportunity to a much wider audience to become involved in this most important consideration of relationships between Primary and Secondary Editors.

1.2 REPORT OF THE PLANNING AND STEERING COMMITTEE

by J.R. SMITH
Chairman, Planning and Steering Committee
BIOSIS Director for Research and Development

This report covers only the points which are not reported separately. In particular the reports about the various Working Groups activities will be given separately .

a)- Working Groups and Task Groups

- Two Ad Hoc Task Groups will meet during these meetings : one on Hydrology, the other one on Applied Mathematics and Computer Sciences. They will hold preliminary discussions to consider possible cooperative work and to examine whether there is a need for permanent Working Groups on these subjects.

- At their 11th meeting in March 1972, the Planning and Steering Committee created an " ICSU AB Working Group on the Reference Manual " to continue the work in this field. This Working Group is composed of representatives from ICSU AB Member Services who were Members of the UNISIST/ICSU AB Working Group on Bibliographic Descriptions, one representative of primary publications and one representative from IFLA. From discussions with various people, the idea came that we should now move one step further and try to prepare a " handbook for bibliographic descriptions ". This handbook should cover as many aspects of bibliographic descriptions as possible, that is all forms of bibliographic descriptions for all types of literature. This handbook would not be used as a whole but several " Reference Manuals "

would be derived from it for use by, for instance, libraries, abstracting and indexing services, primary editors, etc., and the existing Reference Manual would be one of them.During the course of discussions with UNESCO it was agreed that this ICSU AB Working Group on the Reference Manual would be converted into a UNISIST/ICSU AB/IFLA Working Group on the Handbook. Its composition would remain the same as the one of the ICSU AB Working Group on the Reference Manual, with the exception that one representative from UNESCO would be added and there would be also one ISO observer. The first task of this Working Group would be :

1.- To define the content and scope of the handbook

2. To establish a methodology for its preparation (list necessary Task Groups and their composition)

3.- To evaluate time and money necessary to prepare it.

4.- To define the scopes and contents of the various " sub-handbooks " (Reference Manuals)

This Working Group would meet for the first time in early I973.

- Joint ICSU AB Codata Working Group .

It has been proposed to Codata that a joint ICSU AB Codata Working Group be formed to discuss matters of common interest. This will be considered by the Codata Executive Committee in June I972.

b)- Tentative List of Publications of ICSU Scientific Unions,Special and Scientific Committees and Commissions of ICSU

At the request of ICSU, the Planning and Steering Committee have reconsidered the publication of the Tentative List of Publications of ICSU Scientific Unions, Special and Scientific Committees and Commissions. The Bulletin of the Royal Society furnishes a "Catalogue of Royal Society Special Libraries for International Scientific Publications". This catalogue covers publications of ICSU Scientific Unions,etc.,and there is an overlap between it and the Tentative List. The Planning and Steering Committee therefore decided to cease the publication of the Tentative List from I972.

c)- Survey of the Activities of ICSU Scientific Unions, Special and Scientific Committees and Commissions of ICSU in the field of Scientific Information

At the request of ICSU, the Planning and Steering Committee reconsidered also the publication of the " Survey of the Activities of ICSU Scientific Unions, Special and Scientific Committees and Commissions of ICSU in the field of Scientific Information ". This Survey is interesting in that sense that it is the only publication describing the activities of the var[illegible]ittees and Commissions which, within ICSU bodies, deal with pr[illegible]s of information. These Commissions are very numerous and,in most cases, they work independently the one from the other. However, it was recognized that the ICSU AB Secretariat met difficulties in explaining precisely what is meant by "activities in the field of information" when the material is collected. Also there is a significant number of Commissions which do not meet each year. It was therefore decided to issue this publication each two years and to try to focus more on its scope.

d)- Questionnaire to Member Services

The Planning and Steering Committee reconsidered the value of the Questionnaire to Member Services. It was agreed that it should condensed and should concentrate on questions which can be answered numerically. Long range trends are also important.

e)- I S D S

Following an ICSU AB Member Services meeting held in Hhiladelphia in March I972 a communication had been sent to Mrs Rosenbaum, Director of ISDS raising a number of questions - Mrs Rosenbaum's answer gave satisfaction to ICSU AB Member Services which, in addition, were able to provide Mrs Rosenbaum with a description of the statistics which they would like to see currently derived from the ISDS data base.

The ICSU AB Member Services had also been asked to provide their periodical files to ISDS. Those Services which have such files in machine readable form have either already sent their tapes or, after an exchange of correspondence with ISDS have agreed to send them.

The Planning and Steering Committee have agreed to transmit to Mrs Rosenbaum the following desiderata of the ICSU AB :

1. That a representative of ICSU AB be formally appointed to the governing body of ISDS, to provide liaison with the Abstracting and Indexing Community.

   Full cooperation of Abstracting and Indexing Services in an ISDS is desirable. When ISDS becomes operational the Abstracting and Indexing Services must routinely and directly depend on ICRP for timely assignments of ISSNs, for handling and processing the primary literature. This is a critical operation and it is the life blood of control on input into Abstracting and Indexing Services. The operation must be carried out in a timely and economic manner.

2. That the ISDS Technical Advisory Committee include as many representatives and experts as possible from the major Abstracting and Indexing Services.

   These are the operating organizations which will depend on ISDS. The experts involved know the changing operational specifications and requirements of ICSU AB Member Services and can help make the ISDS system most efficient and effective.

f)- Input Plan

Step 2 of the Input Plan (determination of the various categories of papers which may be found in periodicals) is the subject of a contract with UNESCO.

Also a proposal has been put to the Institut für Dokumentationswesen to study the most efficient and economic way to establish the aggregate list of periodicals covered by Member Services (Step 3 of the Input Plan).

Further developments depend upon several factors. In the UNESCO Programme and Budget for I973/I974 which will be submitted to the UNESCO General Conference this fall, some contribution is provided for work on the Input Plan within the UNISIT Programme. However, this contribution cannot by far cover the total cost of the necessary studies preliminary to the implementation of the Input Plan. The Secretariat and the Planning and Steering Committee will study other alternatives.

RESOLUTION 9

ICSU AB reaffirmed its support of the UNISIST concept and asked the Executive Committee to prepare an appropriate statement to be transmitted to bodies concerned.

1.3. REPORTS OF THE SPECIALIZED WORKING GROUPS AND COMMITTEES

1.3.1. THE UNISIST/ICSU AB WORKING GROUP ON BIBLIOGRAPHIC DESCRIPTIONS

REFERENCE MANUAL

by M.D. MARTIN, member
UNISIST/ICSU AB WORKING GROUP
ON BIBLIOGRAPHIC DESCRIPTIONS
Systems Manager, INSPEC

As was anticipated in the progress report given to the ICSU AB Full Board Meeting in Orleans last year, the UNISIST/ICSU AB Working Group on Bibliographic Descriptions reached its first major milestone at the end of 1971, when, as a result of further meetings of specialist Task Groups and a great deal of hard work by individual members, all the necessary material was assembled for the preparation of a complete first draft of the Reference Manual.

During the closing stages of the work of Task Group 9 on non-periodical literature, the Working Group was particularly grateful for the assistance of WIPO in respect of the "bibliographic" data elements required for patents.

A first draft of the Reference Manual was compiled and circulated to ICSU AB member bodies and other interested parties early in 1972. The structure of the Manual has changed somewhat from the original plan. Part 1 is now a general introduction and overview, providing individual matrices of essential and supplementary data elements for each type of literature. Part 2 gives detailed definitions of each individual data element. Part 3 describes the record format and character sets which have been adopted by the Working Group within the framework of existing ISO proposals.

Some aspects of the first draft must be viewed strictly in terms of the test to which the Reference Manual is currently being submitted. This applies particularly to the worksheets which are included in an appendix and which were designed solely for the purposes of the test. A quite substantial revision of the Manual is anticipated before it is finally published.

The test programme is well under way. Under the supervision of staff of the University of Sheffield Postgraduate School of Librarianship and Information Science, a pilot test was administered in February and March. The full test package was distributed to twenty-five participating organisations - including libraries and secondary information services - in April, and returns have already been received from some fifteen of these. Following an analysis of the completed worksheets, a final report and recommendations will be submitted to the Working Group.

The results of the testing so far have shown up a number of problems which will need further attention by the Working Group. There have also been some real conceptual difficulties involved in testing by manual methods a set of recommendations which are intended to apply to machine-readable records. The Working Group would like to record its gratitude to all the organisations which have agreed to participate in the test, and to their individual staff members who have been responsible for completing the test worksheets. One thing is certain : the value of submitting a proposed standard to this kind of practical testing has been abundantly demonstrated.

A further meeting of the Working Group is expected to take place later this year, at which the final revision of the Manual will be agreed, and procedures for its publication and continued maintenance will be discussed. The Reference Manual has met with a substantial response as an important step towards the wider exchangeability of bibliographic data bases and a key contribution to the UNISIST programme. It is very much to be hoped that it will be thoroughly maintained and widely adopted for the immediate future.

1.3.2. ICSU AB/IUGS WORKING GROUP FOR THE PREPARATION OF A MULTILINGUAL THESAURUS

by J.J. LLOYD
Chairman, ICSU AB/IUGS Working Group for the Preparation of a Multilingual Thesaurus
AGI Director of Science Information

The ICSU AB Planning and Steering Committee, at its May 1969 meeting, authorized the establishment of a Multilingual Thesaurus Working Group. The Committee hoped that the existence of multilingual thesauri in the Sciences would :

1. Eliminate the ambiguities that exist in the use of unstructured dictionaries.
2. Extend the international exchange of information through a framework of language agreed upon by the communicants.
3. Facilitate the accurate indexing of foreigh-language literature.
4. Possibly create a common philosophy of indexing among the cooperating services.
5. Consider the establishment of a common computer code that would provide an artificial language to facilitate the exchange and retrieval of information.

At the Rome meeting in September 1969 the Full Board selected Geology as the discipline in which a pilot project should be undertaken.

A Working Group was named consisting of Leon Delbos (BRGM), Nathalie Dusoulier (CNRS), Jack Gravesteijn (BRGM), Joel Lloyd (AGI), and I.N. Sorokin (VINITI). At a preliminary meeting of the Group before the closing of the Rome session Lloyd was elected Chairman of the Group and Dr. Sorokin was asked to identify and name a Soviet geologist to represent VINITI as a working member.

Early in 1970 the International Union of Geological Sciences requested a participation in the project, which became a joint Working Group sponsored by ICSU AB and IUGS. The initial membership was enlarged to include M. Beuché (CNRS), H. Glashoff (Bundesanstalt für Bodenforschung), J. Hruska (Geofond), and B. McGee (Canadian Geological Survey).

At a working meeting in March, 1971, the Group met with representatives of UNESCO (W. Löhner, F. Levy, L. Rolling) to discuss the UNESCO draft Guidelines for the Establishment and Development of Multilingual Scientific and Technical Thesauri for Information Retrieval. The unanimous opinion of Working Group members was that the Guidelines contained ambiguities that made it impossible to use as a "blueprint" or to evaluate prior to completion of the Group's own project. An evaluation was promised to UNESCO after the termination of the pilot project. This will be supplied after presentation of the pilot thesaurus to the International Geological Congress in August, 1972.

The work started immediately following the Rome 1969 meeting with an exchange and comparison of computer printouts with the keywords and the frequencies of their occurrence, used in indexing the BRGM and the AGI bibliographies. From this study a subset of the vocabulary of geology was chosen for the pilot test. Tectonics was selected for the project because of the nonambiguity of its terms and because it presented a workable number. As a "source thesaurus" in the sense used in the UNESCO document did not exist, but as a source definition of terms was available in the AGI Glossary of Geology (in press), the tectonic section of the work was distributed to the members of the Working Group for preliminary study.

A meeting of the ICSU AB and the IUGS delegates in 1970 heard the preliminary comments of the various language-representatives on the translation and correlation of the source list to the target lists and problems involving the matching of Descriptors and Non-descriptors became apparent. It was agreed (at that and subsequent meeting and through correspondence) that an idealized multilingual thesaurus should contain every conceivable term that could be used in geology by the searchers of an index in the all of the languages involved and that the task of the thesaurus constructers was to develop a one-to-one correspondence and to identify the related Descriptors and Non-descriptors in every case. It quickly became evident that the magnitude of the work required for the formulation of an ideal multilingual thesaurus was

beyond the economic scope and the time-frame within which the Working Group was excepted to complete its task. The Group agreed, therefore, to adopt the more pragmatic approach of compiling a multilingual thesaurus that would serve the requirements of indexing by the specific bibliographic units that were engaged.

The thesaurus pages that follow (letters A and F only) reflect a discrepancy, between the services, that results from differences in indexing philosophies as they relate to the degree of specificity required to satisfy search and retrieval. This is indicated by the relative length of the Descriptor versus the Non-descriptor listings in the represented languages. The "ideal thesaurus" would resolve these differences by an equal matching of Descriptors and Non-descriptors. The "pragmatic thesaurus" however, must take into consideration the operative restraints that exist within the systems. The effect of this discrepancy is to minimize the value of the matching to the most specific system (or more specific systems) while not affecting its utility for the more general systems. The Working Group nevertheless feels that this circumstance does not alter the successful completion of the assigned task -- to construct a multi-lingual thesaurus as a pilot project and to develop a working plan.

The thesaurus is the result of correspondence between members and a few meetings of the entire Working Group. It entailed discussion and consideration of each candidate term to decide if it were to appear at all, and if so, as a Descriptor or a Non-descriptor in the contributory systems. The logic of the hierarchical ordering required definition, discussion and agreement. (The hierarchy was a useful indicator of the accuracy of definitions between languages). A very certain conclusion of all of the Working Group members is that the construction of multilingual thesauri is not a theoretical exercise but the result of hard-working sessions between subject specialists working term by term through the list.

The Tectonic thesaurus has been completed and the complete alphabetic listing will be presented to the International Geological Congress in August, 1972. It may result in the naming of an IUGS Commission to undertake a broader multilingual thesaurus that will include the full vocabulary of the geological sciences and a broader range of language involvement. Only two letters of the total work are being submitted with this report as the Group feels that ICSU AB is more interested in the plan of the work than the work itself. (The full thesaurus will be printed shortly and will be available to any interested ICSU AB member).

In the following pages, and in the full work, Descriptors are identified by upper case letters. Non-descriptors are in lower case, or in upper and lower for German. The listing appears in four sections ; alphabetized in Czech, in English, in French, and in German. Primary entries are followed by the corresponding language equivalents if equivalents exist. A blank in the second, third, or fourth column indicate no matching term for that language. Hierarchies appear only in the alphabetized first column. The logic employed in establishing the hierarchical relationships is as follows :

Broader Term (BT) : A prime entry, only if it is a Descriptor, may or may not have a Broader Term. It may only have one Broader Term and that must be a single step up in the hierarchy. For example, the BT of Sandstone would be Sedimentary Rock, and the BT of Sedimentary Rock would be Rock, but the BT of Sandstone is not Rock.

Narrower Term (NT) : A prime entry, only if it is a Descriptor, may or may not have Narrower Terms. There is no limit upon the number of Narrower Terms it may have and the NTs may be one or more steps down in the range.
(NOTE : As the purpose of the Broader Terms and the Narrower Terms as used in the search strategy is to either expand or to reduce the results of an inquiry, it logically follows that they can only be assigned to Descriptors, and that they must themselves be Descriptors).

Related Term (RT) : Related Terms are the equivalent of a "see also" note in an index. They are suggested to widen the scope of a search query and must, therefore, be assigned only to Descriptors and must themselves be Descriptors.

Use (USE) : Use terms are guides to the Descriptive terminology of the system and one only must accompany every Non-descriptor.

Use For (UF) : The Use For notation is the reciprocal of the USE term. It must accompany any Descriptor that has been identified as a USE word and may be followed by an unlimited number of Non-descriptors. For example : ACCORDION FOLD, UF : angular fold, concertina fold, zig-zag fold.

MULTILINGUAL THESAURUS
FOR THE
GEOLOGICAL SUB-FIELD "TECTONICS"

A P P E N D I X

GEOFOND
PRAGUE

CZECH	ENGLISH	FRENCH	GERMAN
akadské vrásnění USE: PREKAMBRICKÉ VRÁSNENI	ACADIAN OROGENY	tectonique acadienne	Akadische Orogenese
ALPINSKE VRASNENI UF: aplinni, alpinsky, laramické vrásnění	ALPINE OROGENY	TECTONIQUE ALPIN	ALPINE OROGENESE
anteklisa USE: PLATFORMA (+ELEVACE)	anteclise	ANTECLISE	ANTEKLISE
ANTIKLINALA UF: protržená antiklinála, erocovaná antiklinála	ANTICLINE	ANTICLINAL	ANTIKLINALE
ANTIKLINORIUM	ANTICLINORIUM	ANTICLINORIUM	ANTIKLINORIUM
apalačské vrásnění USE: HERCYNSKE VRASNENI	APPALACHIAN OROGENY	tectonique appalachienne	Appalachische Orogenese
asymetrická vrása USE: VRASA (+GEOMETRIE)	ASYMMETRIC FOLD	pli dissymétrique	asymmetrische Falte
aulakogen USE: SYNEKLIZA	aulakogen	aulacogène	AULAKOGEN

CZECH	ENGLISH	FRENCH	GERMAN
ALLOCHTON UF: exotický	ALLOCHTHON	allochtone	ALLOCHTHON
AUTOCHTON	AUTOCHTHON	autochtone	AUTOCHTHON
FLEXURA	FLEXURE	FLEXURE	FLEXUR

GEO-REF
WASHINGTON

ENGLISH	CZECH	FRENCH	GERMAN
ACADIAN OROGENY	akadské vrásnění	tectonique acadienne	Akadische Orogenese
ACCORDION FOLD BT: FOLD UF: angular fold, concertina fold, zig-zag fold	puklinová (akordeonová) vrása	pli en accordéon	Zickzackfalte
ALLOCHTHON RT: AUTOCHTHON, EXOTIC, OLISTOSTROM UF: nappe, decke	ALLOCHTON	allochtone	ALLOCHTHON
ALPINE OROGENY	ALPINSKE VRASNENI	TECTONIQUE ALPINE	ALPINE OROGENESE
angle of dip USE: DIP	úhel úklonu	pendage	Einfallen
angular fold USE: ACCORDION FOLD			
anteclise USE: PLATFORM	antekliza	ANTECLISE	ANTEKLISE
ANTICLINE BT: FOLD NT: BRACHYANTICLINE, BREACHED ANTICLINE, GIANTICLINE RT: SYNCLINE	ANTIKLINALA	ANTICLINAL	ANTIKLINALE

ENGLISH	CZECH	FRENCH	GERMAN
ANTICLINORIUM BT: FOLD SYSTEM RT: SYNCLINORIUM	ANTIKLINORIUM	ANTICLINORIUM	ANTIKLINORIUM
APPALACHIAN OROGENY	apalacské vrásnění	tectonique appalachienne	Appalachische Orogenese
ARCUATE FAULT BT: FAULT	obloukový zlom	faille arquée	gekrümmte Storung
ASYMMETRIC FOLD BT: FOLD	asymetrická vrása	pli dissymétrique	asymmetrische Falte
AUTOCHTHON RT: ALLOCHTHON	AUTOCHTON	autochtone	AUTOCHTHON
aulakogene USE: SYNECLISE	aulakogen	aulacogène	AULAKOGEN
axial depression USE: SADDLE		charnière anticlinale	Achsendepression
AXIAL PLANE BT: FOLD	osní rovina	PLAN AXIAL	ACHSEN EBENE
AXIS RT: FOLD	OSA	AXE DE PLISSEMENT	ACHSE

ENGLISH	CZECH	FRENCH	GERMAN
FAULT	ZLOM	FAILLE	VERWERFUNG
NT: ARCUATE FAULT BEDDING FAULT BLOCK FAULT DIP-SLIP FAULT DRAG FAULT FOOTWALL FAULT PLANE GRABEN HORST HINGE LINE LATERAL FAULT NORMAL FAULT REVERSE FAULT STEP FAULT STRIKE-SLIP FAULT THRUST FAULT TRANSFORM FAULT UNDERTHRUST UPTHROW WRENCH FAULT			
UF: fracture rift rupture			
FAULT BRECCIA	DISLOKACNI BREKCIE	BRECHE TECTONIQUE	TEKTONISCHE BREKZIE
UF: tectonic breccia dislocation breccia fault gouge fault rubble			
fault gouge USE: FAULT BRECCIA			Letten-Bestag

ENGLISH	CZECH	FRENCH	GERMAN
FAULT PLANE BT: FAULT	zlomová plocha	plan de faille	STORUNGSFLACHE
fault rubble USE: FAULT BRECCIA			
FAULT SYSTEM NT: CONJUGATE SYSTEM IMBRICATE STRUCTURE	ZLOMOVY SYSTEM	système de failles	FALTENSYSTEM
FENSTER RT: INLIER UF: window	TEKTONICKE OKNO	FENETRE	FENSTER
FLEXURE BT: FOLD RT: MONOCLINE	FLEXURA	FLEXURE	FLEXUR
FLOW CLEAVAGE RT: SLATY CLEAVAGE UF: true cleavage	plastické (tahová) kliváž	clivage	
FOLD NT: ACCORDION FOLD ANTICLINE ASYMMETRIC FOLD AXIAL PLANE CREST DISHARMONIC FOLD	VRASA	PLI	FALTE

ENGLISH	CZECH	FRENCH	GERMAN
FOLD (cont.) NT: DISJUNCTIVE FOLD DOME FISSURE HOMOCLINE INFRASTRUCTURE LIMB MICROFOLD MONOCLINE NEPTION OVERTURNED FOLD PLUNGE PLUNGING FOLD RECUMBENT FOLD SADDLE SYNCLINE RT: AXIS			
FOLD MOUNTAINS	VRASOVÉ POHOŘÍ	chaîne plisée	FALTENBIRGE
FOLD SYSTEM NT: ANTICLINORIUM EN ECHELON SYNCLINORIUM	VRASOVÉ SYSTÉM	TECTONIQUE SOUPLE	FALTENSYSTEM
FORELAND	předpolí	avant-pays	Vorland
foredeep USE: EXOGEOSYNCLINE			

B R G M
ORLEANS

FRENCH	CZECH	ENGLISH	GERMAN
ACCIDENT TECTONIQUE NT: BOUDINAGE FLEXURE FRACTURE NAPPE PLI RT: DEFORMATION			
allochtone USE: AUTOCHTONIE	ALLOCHTON	ALLOCHTHON	ALLOCHTHON
altération concentrique USE: DIACLASE + GEOMETRIE	kulovitá odlučnost	SPHEROIDAL PARTING	Kugelige Absonderung
angle de pendage USE: GEOMETRIE + SURFACE	úhel úklonu	angle of dip	Einfallen
angle avec la verticale USE: GEOMETRIE + SURFACE	spádnice	HADE	Flächennormale
ANTECLISE RT: ANTICLINORIUM PLATE-FORME	antekliza	anteclise	ANTEKLISA
ANTICLINAL BT: PLI RT: ANTICLINORIUM UF: anticlinal érodé brachyanticlinal	ANTIKLINALA	ANTICLINE	ANTIKLINALE

FRENCH	CZECH	ENGLISH	GERMAN
ARC INSULAIRE BT: STRUCTURE ARQUEE	OSTROVNI OBLOUK	ISLAND ARC	INSELBOGEN
arrière fosse USE: GEOSYNCLINAL	záhlubeň	BACKDEEP	Rücktiefe
aulakogène USE: SYNECLISE	aulakogen	aulakogene	AULAKOGEN
autochtone USE: AUTOCHTONIE	AUTOCHTON	AUTOCHTHON	AUTOCHTHON
AUTOCHTONIE RT: CHARRIAGE TECTONIQUE ELEMENT NAPPE UF: allochtone autochtone exotique			
avant-fosse USE: GEOSYNCLINAL	CELNI HLUBINA	foredeep	Vortiefe
avant-pays USE: PLATE-FORME	předpolí	FORELAND	Vorland
AXE DE PLISSEMENT BT: PLAN AXIAL UF: axe synclinal crête charnière anticlinale	OSA	AXIS	ACHSE
axe synclinal	koryto vrásy	TROUGH	Muldenachse

FRENCH	CZECH	ENGLISH	GERMAN
FAILLE BT: FRACTURE NT: FAILLE TRANSFORMANTE CHEVAUCHEMENT UF: faille horizontale de décrochement faille arquée faille de stratification faille d'entraînment faille à déplacement latéral faille directionelle faille inverse faille normale faille perpindiculaire faille vertical de décrochement lèvre inférieure lèvre supérieure plan de faille	ZLOM	FAULT	VERWERFUNG
faille arquée USE: FAILLE	obloukový zlom	ARCUATE FAULT	gekrümmte Störung
faille à déplacement latéral USE: FAILLE	příčný zlom	LATERAL FAULT	
faille directionelle	směrný zlom	STRIKE FAULT	streichende Verwerfung

FRENCH	CZECH	ENGLISH	GERMAN
faille horizontale de décrochement USE: FAILLE	horizontální (směrný) posun	STRIKE-SLIP FAULT	BLATTVERSCHIEBUNG
faille inverse USE: FAILLE	překocená vrása	REVERSE FAULT	Aufschiebung
faille normale USE: FAULT	pokles	NORMAL FAULT	Abschiebung
faille perpindiculaire USE: FAILLE	příčný zlom	cross fault	Querverwerfung
faille de stratification USE: FAILLE	směrná dislokace	BEDDING FAULT	Schichtparallele Verwerfung
FAILLE TRANSFORMANTE BT: FAILLE RT: EXPANSION FOND OCEANIQUE	transformační zlom	TRANSFORM FAULT	TRANSFORM FAULT
faille verticale de décrochement USE: FAILLE	vertikální (směrný) posun	WRENCH FAULT	Steile Blattverschiebung
FENETRE BT: NAPPE UF: boutonnière	TEKTONICKE OKNO	FENSTER	FENSTER
flanc USE: PLI + GEOMETRIE	rameno vrásy	LIMB	Faltenschenkel

FRENCH	CZECH	ENGLISH	GERMAN
FLEXURE BT: ACCIDENT TECTONIQUE RT: PLI MONOCLINAL	FLEXURA	FLEXURE	FLEXUR
FOLIATION BT: SCHISTOSITE		SLATY CLEAVAGE	Kristallisation-schieferung
FOSSE ABYSSALE		TRENCH	TIEFSEE-GRABEN
FRACTURATION RT: CONTROLE TECTONIQUE BRECHE TECTONIQUE CISAILLEMENT RUPTURE FRACTURE MYLONITE UF: cataclase			
FRACTURE BT: ACCIDENT TECTONIQUE NT: FAILLE DIACLASE RESEAU FRACTURE RT: FRACTURATION TECTONIQUE CASSANTE	PUKLINA	fracture	

B F B
HANNOVER

GERMAN	CZECH	ENGLISH	FRENCH
Abgesenkte Scholle USE: SCHOLLENBAU	podsun	DOWNTHROW	lèvre inférieure
Abschiebung USE: VERWERFUNG	pokles	NORMAL FAULT	faille normale
ACHSE RT: FALTE FALTENSYSTEM UF: Achsendepression Achsenfallen Faltenachse	OSA	AXIS	AXE DE PLISSEMENT
Achsendepression USE: ACHSE + GEOMETRIE	sedlo (antiklinála)	axial depression	chernière anticlinale
ACHSEN-EBENE	osní rovina	AXIAL PLANE	PLAN AXIAL
Achsenfallen USE: ACHSE + GEOMETRIE	sklon vrásové	PLUNGE	plonement
AKADISCHE OROGENESE	akadské vrásnení	ACADIAN OROGENY	tectonique acadienne
Akkordeon-Falte USE: FALTE	puklinová (akordeonová) vrása	ACCORDION FOLD	pli en accordéon
ALPINE OROGENESE	ALPINSKE VRASNENY	ALPINE OROGENY	TECTONIQUE ALPINE
ALLOCHTHON RT: DECKE OLISTOSTROM UF: erratisch exotisch	ALLOCHTON	ALLOCHTHON	allochtone

GERMAN	CZECH	ENGLISH	FRENCH
ANTIKLINALE BT: FALTENSYSTEM RT: ANTIKLINORIUM ANTEKLISE UF: Brachyantiklinale erodierte Antiklinale Sattelachse Sattelfläche Gewölbestruktur	ANTIKLINALA	ANTICLINE	ANTICLINAL
ANTIKLINORIUM BT: FALTENSYSTEM	ANTIKLINORIUM	ANTICLINORIUM	ANTICLINORIUM
ANTEKLISE RT: HEBUNG UF: Dom Gewölbe-Struktur	anteklisa	anteclise	ANTECLISE
APPALACHISCHE OROGENESE	apalacské vrásnení	APPALACHIAN OROGENY	tectonique appalachienne
Asymmetrische Falte USE: FALTE	asymetrická vrása	ASYMMETRIC FOLD	pli dissymétrique

GERMAN	CZECH	ENGLISH	FRENCH
FALTE	VRASA	FOLD	PLI
NT: LIEGENDE FALTE BRUCHFALTE BIEGEFALTE			
UF: Asymmetrische Falte disharmonische Falte Falten-Schenkel homoklinal isoklinal monoklinal Schleppfalte Zickzackfalte Spitzfalte Akkordeon-Falte Spiessfalte Kinkband			
Faltenachse		HINGE LINE	
USE: ACHSE			
FALTENGEBIRGE	VRASOVE POHORI	FOLD MOUNTAINS	chaîne plisée
RT: OROGENESE			
UF: Externiden			
Falten-Schenkel	rameno vrásy	LIMB	flanc
USE: FALTE + GEOMETRIE			

GERMAN	CZECH	ENGLISH	FRENCH
FALTENSYSTEM NT: ANTIKLINORIUM SYNKLINORIUM ANTIKLINALE SYNKLINALE RT: BRUCHSYSTEM	VRASOVE SYSTEM	FOLD SYSTEM	TECTONIQUE SOUPLE
FENSTER BT: DECKE RT: AUTOCHTHON	TEKTONICKA OKNO	FENSTER	FENETRE
Fieder USE: GEOMETRIE +	kulisovitá strukture	EN ECHELON	ěn echelon
Flächennormale USE: GEOMETRIE	spádnice	HADE	angle avec la verticale
FLEXUR	FLEXURA	FLEXURE	FLEXURE

1.3.3. WORKING GROUP ON CLASSIFICATION SCHEME GEOLOGY

by J. GRAVESTEIJN
Chairman, ICSU AB Working Group on Classification Scheme Geology
Editor in Chief, Bibliographie des Sciences de la Terre

Introduction

The work of the Group has started in 1968 at the demand of ICSU AB. It is obvious that the use of one common classification scheme by all the ICSU AB Member Services dealing with the earth sciences is of great practical and psychological importance.

Although the work has been undertaken as to contribute to a better interconnection between different information systems in the field of the earth sciences the impact in the scientific world could improve the exchange of information in general.

In a first stage a comparative study of existant classifications has been carried out by the B.R.G.M. and a progress report completed in june 1969 (L. Delbos and J. Gravesteijn : Groupe de travail sur les plans de classement : Rapport partiel sur les sciences de la terre).

The results of this study have been discussed by the Working Group and a second progress report has been prepared in May 1971 , which has been amended at the last meeting of the W.G. in February 1972.

The present report gives the conclusions of the study.

Comparison of existing classifications

The major headings of the classification schemes which have been compared are included in the present report (appendix I to III).

In the first stage of the study consideration has been given to UDC as a possible solution of the problem but it has been decided to abandon UDC as a basis for a common classification to be used for a logic ordering of citations in the secondary journals.

Although the information systems used by the major documentation centres are very different the classification schemes of the ICSU AB member services have many points in common and differ essentially in the degree of their specific display.

It was felt that the appropriate approach was to build a common system starting from closely related working schemes and not to try to implement a classification very different in his structure and not adapted to the special needs of secondary journals.

In order to clarify the reasons of similarity and differences between the classification schemes used at present a short description is given of the printed output, produced by the concerned documentation centres.

- Bibliography and Index of Geology. (AGI-GSA, USA)

Covers only the Earth Sciences. Publishes an Author index and three level Subject indexes for the whole field of Earth Sciences. Concepts and geography are mixed in the subject index. The first two levels of the indexing terms are controlled, the third level is a free language level.

One citation list without cross references classified in 21 subfields without further display. The classes are alphabetically ordered. Monthly publication in one volume cumulative annual indexes.

- Bibliographie des Sciences de la terre (BRGM, France) and Bulletin signalétique (CNRS, France).

These secondary journals have been published independently until 1972. Since January 1972 B.R.G.M. and C.N.R.S. publish jointly a journal for the Earth Sciences.

B.R.G.M. deals only with Geology. CNRS covers all fields of Sciences, Author's index, permuted subject index, geographical index and special indexes (stratigraphy, mineralogy, paleontology) are published separately for the 16 subfields. Controlled indexing vocabulary with free terms between brackets.

The citations are grouped according to a two level classification scheme. Monthly publication in 8 parts, grouping the 16 subfields. Cross references admitted. The section Geophysics is not included. Annual cumulative indexes.

- Referatvnyj Zhurnal (VINITI, Moscow)

One volume for the geosciences (Geophysics not included).

One author's index and a detailed classification scheme serving as an index. The major headings of the 1970 classification scheme figure in appendix III. VINITI covers all the fields of Sciences.

Working method

The following questions had to be answered before defining a common classification scheme.

1) Is it possible to agree upon a certain number of subfields forming the framework of the scheme and what should be their order of presentation in the secondary journals ?

2) Once the major headings defined does there exist a common philosophy on the content of these headings ?

3) Is there a need for a detailed classification scheme containing several levels ?

The three questions have been discussed by the active members of the Working Group : AGI, BRGM, CNRS.

The members of the group regret that the representatives of VINITI have not attended the meetings of the Working Group.

The first and second problem have been resolved and the participating members agreed upon a one level classification scheme.

In this respect it can be reported that the analysis of the classification problem has facilitated considerably the discussion on the joint publication BRGM-CNRS.

As far as the third question is concerned, the philosophy of the different information system is varying from one centre to another.

Some of the documentation centres concerned cover only the Earth Sciences, others the whole field of Sciences. Subject Indexes and cross references are not generally used and it is obvious that the need for details in the classification scheme varies with the structure of the secondary journal (presence of subject indexes, number of separate issues published, etc.).

In this stage of the study it is not necessary or even useful to develop a very detailed classification scheme, but to outline the elements enabling a further refining when this becomes necessary. In this respect the definition of the content of the major headings is an important step.

Proposal for a common classification

The field of the Earth Sciences has been splitted up into 20 subfields to be considered as major headings, chapters or "themes" which can serve as a basis for the grouping of the citations and subject indexes.

The titles of these themes are - logically ordered-:

- Mineralogy
- Geochemistry
- Isotopic geochemistry and geochronology
- Extraterrestrial geology
- Igneous and metamorphic petrology
- Sedimentary rocks
- Marine geology
- Paleontology
- Stratigraphy
- Areal geology
- Miscellaneous
- Structural geology
- Solid earth geophysics

* - Applied geophysics
- Geohydrology
- Engineering geology
- Environmental geology
- Surficial geology
- Economic geology : Metals, non Metallic Resources, Oil and Natural Gas, Coal.
* - Mining economics

* If covered ; optional.

Experience has shown that an agreement on the titles of the headings does not imply automatically an agreement on the content of the headings and the members of W.G. felt that is was necessary to define the content of the headings.

This may be the first step to an agreement on sub-headings and facilitate the exchange of information when only some of the themes are concerned.

Mineralogy

General topics : History of Mineralogy, philosophy, theories, bibliographies (biographies), glossaries, indexes, collections, inventories, methodology, experimental studies, synthetically produced natural minerals, phase relations of natural minerals excepted rock forming minerals.

New minerals, descriptive crystallogry and mineralogy of natural minerals.

The general crystallography and the crystallography and mineralogy of artificial minerals are to be eleminated.

Geochemistry

General topics as under Mineralogy but applied to geochemistry.

Methodology of preparation and analysis of rocks, water and soils. Experimental geochemistry.

Results of analyses of trace elements applied to the geosciences.

Biogeochemistry and geochemical exploration.

The isotopic geochemistry is not included.

The results of major constituents analyses are to be classified under petrology, geohydrology or soils.

Isotopic geochemistry and geochronology

General topics as under Mineralogy.

Methodology and results of isotopic dating, fission tracks and birefringence dating.

Not included : dendrochronology and paleomagnetic ages.

Extraterrestrial geology

General topics and methodology (analytical methods not included).

Results of the studies concerning the mineralogy, chemistry, geology or geophysics of the moon, the planets, meteorites, cosmic dust, tectites, impactites.

Igneous and metamorphic petrology

General topics.

Methodology, experimental studies, phase relations in rockforming minerals.

Petrography and petrology of igneous, metamorphic and volcanic rocks, volcanology.

Major constituents analyses are included.

Sedimentary rocks

General topics concerning the field of sedimentary petrology.

Methodology, experiments and phase relations in chemical sedimentation.

Petrography and petrology of sedimentary rocks. Sedimentology.

Recent continental formations and marine geology not included.

Paleogeography is to be treated with stratigraphy.

Petroleum and coal geology as well as the geology of sedimentary mineral resources (evaporites, phosphates, etc.) are to be placed under economic geology.

Marine geology

General topics concerning the field of Marine Geology. Methodology (not included : oceanographic technology, vessels, etc.).

Relief of sea-bottom studies, of non consolidated marine sediments, off-shore geology, sedimentology of recent marine sediments, physical and chemical properties of seawater when used for marine geology (biological properties non included).

Interpretation of marine geophysical profiles.

Oceanology s.s. is to be excepted.

Littoral processes are to be considered as continental.

Paleontology

General topics on paleontology. Methodology of sampling, preparation, etc.

Traces, problematics, origin of life on the earth, paleobotanics, paleozoology, human paleontology.

Archeology is not included.

Stratigraphy

General topics on stratigraphy. Methodology, nomenclature, stratigraphic classification.

Stratigraphy, faunas, flore and paleogeography of the eras.

Areal Geology

The regional monographies, geological maps, photogeological interpretation studies, regional bibliographies and any document with a specific geographic location and concerning several subfields of the Earth Sciences.

Miscellaneous

General topics concerning the whole field of the Earth Sciences. Specific information on the subfields is to be dispatched under these specific headings.

Are grouped in this chapter :

History of the Earth Sciences in general, philosophy, general bibliographies (biographies) education in the field of the Earth Sciences in general, national planning, geology as economic factor, annual reports of institutions, international bodies, geological documentation, application of mathematics to geology. The specific applications are under the chapters concerned.

Structural geology

General information and methodology.

Description of regional tectonics, geometrical analysis of structural elements, epeirogenesis, tectogenesis, internal geodynamics, neotectonics.

Solid Earth Geophysics

General topics.

Composition, properties and structure of the solid earth.

Results obtained from geophysical studies (magnetism, gravimetry, geothermy, seismology).

Articles on the theory of wave velocities are not included.

Applied Geophysics

This chapter is not really a part of Geology but may be included in a documentation tool for the Earth Sciences.

Are to be included in this theme :

Description of geophysical methods applied to the exploration of mineral resources, to geohydrology, and to engineering geology.

The results of the interpretation are to be integrated in the fields of applications.

Geohydrology

General information and methodology.

Surface water hydrology, hydrochemistry of major constituents (geochemical exploration and trace elements not included).

Water supply, hydrogeology, hydrodynamics, pollution of surface and underground water, water economics, water balances, models.

Engineering Geology

General information, methodology.

Rock mechanics, soil mechanics, application of geology to engineering problem, dams, (excepted civil engineering problems), protection and prevision of landslides, earthquakes, etc.

Environmental Geology

Problems concerning pollution of beaches and geological formations, storage, managing and planning for industrial or domestic wastes from a geological point of view.

Application of geology to urbanization and national or regional planning.

Surficial Geology

General topics, methodology.

Erosion, transport and sedimentation in continental environment (lacustrine, fluvial, glacial, littoral, eolian, etc.), continental quaternary, glaciations, geomorphology, soil science. (excepted agricultural applications).

Economic Geology

General topics and methodology of mineral exploration (geochemical and geophysical exploration excepted).

A) Description, exploration and genesis of metallic deposits, metallotects.

B) Description, exploration and genesis of nonmetallic deposits : sulphur evaporites, phosphates, ceramics, abrasives, cement, building materials, etc.

C) Geology of oil and gas deposits.

D) Coal Geology.

These four categories may be separated in independent themes when the economic aspects are included.

Mining Economics

Optional theme just as APPLIED GEOPHYSICS because of its fringe character for the Earth Sciences.

If included in the used classification the following topics must be grouped under this heading :

Economic data concerning mineral resources (reserves, production, quality). Market development for the mineral resources, mineral industry on a national and international scale. Prices, production costs, etc.

Ore dressing is not included.

Implementation of the classification scheme

So far no member service uses the common classification and the following step for the necessary coordination must be the fixing of the date of implementing the use of the common scheme.

When one considers the differences between the individual schemes used now and the proposed classification it can be noted that all the member services have to change their practices.

- For "Bibliography and Index of Geology" the application of isotopic studies to geology should be integrated in another chapter and the studies on geomorphology and soils be brought under one heading.

The ordering of the headings is now alphabetic and different from the proposed scheme.

- "Bulletin signalétique - Bibliographie des Sciences de la Terre" has to introduce the chapters on areal geology and to extend their theme on Economic Geology (Gîtologie) to all the natural resources (Oil and coal geology are now grouped with the sedimentary rocks).

- "Referativnyj Zhurnal" uses several headings for special methodology problems. In the proposed scheme, these documents are grouped with the fields concerned. Further Neotectonics is separated from Tectonics and the documents on surficial geology are displayed in three chapters : Quaternary, Geomorphology and Glaciations.

As stated before no decision has yet been taken by the individual member services when the proposed scheme would become operative.

Appendix I

Classification scheme of "Bibliography and Index of Geology" (1971)

01 Areal Geology
02 Economic Geology
03 Engineering Geology
04 Extraterrestrial Geology
05 Geochemistry
06 Geochronology
07 Geohydrology
08 Geomorphology
09 Igneous and Metamorphic Petrology
10 Marine Geology
11 Mineralogy and Crystallography
12 Miscellaneous
13 Paleobotany
14 Paleontology, General
15 Paleontology, Invertebrate
16 Paleontology, Vertebrate
17 Sedimentary Petrology
18 Soils
19 Solid-Earth Geophysics
20 Stratigraphic and Historical Geology
21 Structural Geology

Appendix II

First Level of the Classification Scheme of "Bulletin Signalétique - Bibliographie des Sciences de la Terre " (1972)

Section 220 - Cahier A. - Minéralogie (Mineralogy)
- Géochimie (Geochemistry)
- Géochimie isotopique et géochronologie (Isotopic geochemistry and geochronology)
- Géologie extraterrestre et cosmochimie (Extraterrestrial geology and cosmochemistry)

Section 221 - Cahier B. - Gîtologie, exclus charbon, pétrole, bauxite, phosphates, evaporites, argiles, produits céramiques. (Metallic mineral resources)
- Economie minière (Mining economics).

Section 222 - Cahier C. - Roches cristallines. (Igneous and metamorphic rocks)

Section 223 - Cahier D. - Roches sédimentaires inclus sédimentologie et géologie du charbon, du pétrole, de la bauxite, des phosphates, des évaporites, des argiles, des produits céramiques. (Sedimentary rocks)
- Géologie marine. (Marine geology)

Section 224 - Cahier E. - Stratigraphie et géologie régionale (Stratigraphy and areal geology)
- Géologie générale (Miscellaneous)

Section 225 - Cahier F. - Tectonique (Structural geology and tectonophysics)

Section 226 - Cahier G. - Hydrologie (Hydrology)
- Géologie de l'ingénieur (Engineering geology)
- Formations superficielles (Surficial geology)

Section 227 - Cahier H. - Paléontologie. (Paleontology)

Appendix III

First Level of the Classification Scheme of "Referativnyj Zhurnal, Geologija" (1970)

- Généralités (Miscellaneous)
- Méthodes mathématiques en géologie (Mathematical methods in geology)
- Problèmes géologiques résultant de l'utilisation de l'énergie nucléaire (Geological problems resulting from nuclear energy) (Isotope studies and application ?)
- Géologie cosmique et géologie des planètes. (Cosmic geology and geology of the planets)
- Géochimie (Geochemistry)
- Minéralogie (Mineralogy)
- Pétrographie (Petrography)
- Méthodologie minéralo-pétrographique et géochimique (Methodology in mineralogy, petrography and geochemistry).
- Minéralogie et pétrographie physico-chimique et expériences (Experimental mineralogy and petrology).
- Lithologie (Lithology)
- Tectonique (Tectonics)
- Structure de l'écorce terrestre et du manteau d'après les données géophysiques (Structure of the earth crust and mantle resulting from geophysical studies).
- Paléontologie (Paleontology)
- Quaternaire (Quaternary)
- Néotectonique (Neotectonics)
- Géomorphologie (Geomorphology)
- Géologie régionale (Areal geology)
- Géologie des mines métalliques (Geology of metallic deposits)
- Géologie des substances utiles non métalliques (Geology of nonmetallic deposits)
- Géologie des combustibles solides (Geology of coal deposits)
- Géologie du pétrole et du gaz (Geology of petroleum and natural gas)
- Prospection (Exploration)
- Hydrogéologie (Hydrogeology)
- Géologie de l'ingénieur (Engineering geology)
- Phénomène de glaciation (Glaciation phenomena)
- Technique de la prospection géologique (Techniques of geological survey).

- Géologie de l'ingénieur (Engineering geology)
- Phénomènes de glaciation (Glaciation phenomena)
- Technique de la prospection géologique (Techniques of geological survey).

1.3.4. WORKING GROUP IN PHYSICS

by H.D. BARLOW
Chairman, ICSU AB Working Group in Physics
Director, INSPEC

The Member Services represented on the Working Group in Physics include the English-language service Physics Abstracts, the French -language service Bulletin Signalétique, the German-language service Physikalische Berichte, and the Russian-language service Referativnyi Zhurnal. A representative of the International Union of Pure and Applied Physics is also a member of the Working Group. In view of the election of AIP to the full membership of ICSU AB the Working Group will now be further strengthened.

During the year since the last full meeting in Orléans in July 1971, the Working Group has met once in Paris in March 1972. Although only one meeting has been held a lot of detailed work has been done behind the scenes in implementing the Working Group's programme.

This programme has four basic aims :

1. Exchanges and comparisons of abstracts between Member Services to determine the extent to which co-operation can be achieved in covering fringe journals

2. Work towards a common classification scheme in physics

3. The investigation of problems involved in constructing multi-lingual thesauri

4. Examination of methods of how to measure quality of abstracting operations.

The whole theme of the work is the building of transfer tools that will permit a single intellectual processing to be done to commonly agreed standards so that complete tape transfers can be accomplished. While this may be regarded as an ambitious programme, each small step that the Working Group is able to achieve brings this closer to the reality. As can be seen from last year's report work was started by comparing the classification systems used by the various Member Services and by performing trial exchanges between the services. The Working Group has now proceeded on past this and are on the verge of achieving a common classification. In addition work has started to determine methods of checking quality of abstracts.

The 1971/72 Achievements

The prime achievement has been the preparation of a draft classification. In the previous years considerable work had been done comparing the classification used by the four Member Services and comparing them also with the UDC classification. A final report on this work has been prepared and the Working Group agreed that sufficient effort had been extended on the comparison of such classifications and that it was now appropriate to start working towards a unified approach could be accepted by all Member Services. This programme was helped to a large extent by the fact that Physics Abstracts presented to the Working Group details of a revised physics classification which could form the starting point of such an exercise. This draft classification has been discussed with various organisations such as the European Physical Society, The Institute of Physics, The American Institute of Physics, and other bodies. The

results of these talks held between these bodies and Physics Abstracts staff have been incorporated in successive drafts which were then submitted to the Working Group for comments by the member services.

The classification proposed is a four level hierarchy and compatibility has been reached with AIP and the Institute of Physics on all levels. The structure of the classification is so designed that it can be used to map out to produce other display formats. Draft N° 5 which is hoped will be the penultimate draft is now before the Working Group and will be reviewed by Physikalische Berichte while Bulletin Signalétique have undertaken to translate and circulate it to its Scientific Advisors for comments.

By the end of 1972 we hope to be in a position to finish this work and present an ICSU AB classification acceptable to the member services involved.

Thesaurus

The next step in the Working Group's program is to develop a Thesaurus in the physics field. Here again a basis for this work will be available from Physics Abstracts who submit a thesaurus containing some 4,000 main terms, 3,000 lead in terms, and 2,000 to 3,000 see references. At the same time a draft paper has been received from Bulletin Signalétique on the methodology of constructing thesauri. This work is scheduled to commence late in 1972.

Quality of Abstracts

In an attempt to assess whether the quality of abstracts can be measured, samples of abstracts have been received from Member Services and analysed for the information elements contained within them. The purpose of this analysis is to see whether each abstract contains the same items of information, also to determine how many words are used and whether the

quality of the abstract produced by different Services is itself the same. Preliminary results show promise and further experiments are being mounted.

The Future

The future work of the Group is directed towards providing the tools through which the implementation of the Input Plan can be achieved. The Group itself will be strengthened by having as its new member a representative of the American Institute of Physics and a real spirit of co-operation exists strongly between the member services. A large amount has been achieved in the past year and one is a stage nearer the ultimate of world unification of information systems in physics. For all the efforts I would like to thank the fellow Committee Members who continue to give up a great deal of their time to promoting the interests of the Group.

1.3.5. WORKING GROUP IN MATHEMATICS

by U.GUNTZER
Chairman, ICSU-AB Working Group in Mathematics
Editor in Chief, Zentralblatt für Mathematik

The Working Group came into existence in October 1971. Its membership comprises of course the Member Services dealing with the field of Mathematics: Bulletin Signaletique with its section 110, Referativnyi Zhurnal with its section Mathematika, and Zentralblatt für Mathematik. As many of you certainly know, there is a great service in the field of Mathematics missing; I mean Mathematical Reviews of the American Mathematical Society and I am very glad that we have here at this meeting Dr. Gordon Walker, Executive Director of the American Mathematical Society, and I do hope that he will join the board in order to make it truly representative also in the field of Mathematics.

Because the Working Group is still in an infant stage and because the Russian members unfortunately were unable to attend, its work concerns itself mostly with bilateral cooperation between Bulletin Signaletique and Zentralblatt für Mathematik. I am very glad to be able to report that this works very well along the following lines :

1) We have agreed on the exchange of announcements of French dissertations and German dissertations. In a first stage we copy them after they have appeared in the other journal, of course giving credit to the other journal. In a second stage it is envisaged to exchange the announcements already at the manuscript stage in order not to loose time unecessarily.

2) Another area of cooperation is the exchange of fringe material. Bulletin Signaletique is scrutinizing many journals not covered by Zentralblatt für Mathematik, which nevertheless carry a mathematical paper once in a while. Drawing on the experiences made in this context by Physics Abstracts and Bulletin Signaletique we are in the process of working out the details of this procedure.

3) A third area is work towards a common classification scheme. Last year Zentralblatt für Mathematik adopted the classification scheme of the American Mathematical Society. We consider this to be a real step forward towards a common international accepted classification. This area has been discussed at an informal meeting of the Working Group in Mathematics in Ustaoset here yesterday; the result is : Bulletin Signaletique and Zentralblatt für Mathematik shall examine each other's classification schemes in those areas covered by both of them in order to construct as a first step a switching mechanism from one scheme into the other.

1.3.6 WORKING GROUP IN BIOLOGY

by Ed. KENNEDY
Member, ICSU AB Working Group
in Biology
Director for Scientific Affairs
BIOSIS

The Working Group in Biology has been concerned with comparison studies of the classification schemes of Member Services for Biology since 1969. The first comparison of only major classification heading used by BULLETIN SIGNALETIQUE, REFERATIVNYI ZHURNAL BIOLOGIA and BIOLOGICAL ABSTRACTS was considered too brief to be meaningful. An extensive comparison between the classification schemes used by BULLETIN SIGNALETIQUE and BIOLOGICAL ABSTRACTS was made last year. The differences between these schemes are far greater than the similarities. Considering these differences and the scope of the field of Biology, the Working Group agreed that future efforts would be more fruitful if only a small portion of the total field were studied at a time. Thus, the subject area Agronomy was chosen for in-depth study initially, with the hope of evolving a new classification scheme for it that would be better than either existing scheme and one that would be acceptable to both organizations.

BIOLOGICAL ABSTRACTS and BULLETIN SIGNALETIQUE will provide each other with their present respective detailed definition of the topic, including specific types of subject matter to be included as well as related material that is excluded and referred to other sections. BULLETIN SIGNALETIQUE and BIOLOGICAL ABSTRACTS will then exchange subject matter for that section from one issue of each other's publications and make classification assignments according to the other's scheme.

This will further establish differences and similarities. Then each will outline a new classification scheme for Agronomy closer to the ideal that now exists.

After the Agronomy section has been completed, a somewhat similar procedure will be followed for pesticides and subsequently possibly for pollution.

Subject definitions from each organization will be exchanged and studied first. Without reviewing each other's assignments or exchanging abstracts, as in the case of Agronomy, each will outline a new classification scheme for these subjects which might be considered ideal for both organizations.

The projected time table for this work allows for its completion prior to the 1973 ICSU AB meeting.

1.3.7. ICSU AB/ASSOCIATIONS OF PRIMARY PUBLICATIONS EDITORS WORKING GROUP

by A.J.C.WILSON
Chairman, ICSU AB/Associations of Primary Publication Editors Working Group
Professor, University of Birmingham

This joint Working Group has a very long and cumbersome title, and for practical purposes and, I think, a more accurate description of its work I like to use the name

Cooperation among Editors.

This was the title of the open meeting held in Orléans last year in connexion with the ICSU AB General Assembly. The joint Working Group was set up by the ICSU AB as a result of the considerable interest shown in the question of improving cooperation between primary publications and Abstracting and Indexing Services. The Group consists of three members representing associations of editors, two representing secondary services, and myself. In view of the increase number of subject fields covered by the Board, we are asking the Planning and Steering Committee to increase the size of the Group from six to eight.

The joint Working Group has had two major tasks during the year. The Ist was the preparation of Cooperation among Editors :

Some Guidelines for Primary Publications and Abstracting and Indexing Services.

This is a pamphlet of about 1000 words, now in press, and intended for wide distribution via associations of editors and secondary services. The second task was the arrangement of the Open Meeting held on Sunday.

For those who arrived in time I need say nothing about this, but unfortunately many of you did not get here till Sunday evening. Sunday morning was devoted to a discussion of matters that might be dealt with in future "Guidelines", including the somewhat difficult matter of the bibliographic strip, and other possible future activities of the Group. One of them is likely to be the organization of a fairly large get-together of editors of primary publications and secondary services in conjunction with the London meeting of the Board next year. On Sunday afternoon there was a discussion on "Indexing" introduced by three papers on different aspects. There were prepared by Karl HEUMANN, Joel LLOYD and Christian WEISKE. The exact titles are given on the agenda paper included in your folders. I need only say that the members and observers present found the papers most stimulating, and there was a long and lively discussion.

1.3.8. AD HOC WORKING GROUP ON APPLIED MATHEMATICS AND COMPUTER SCIENCE

by N.DUSOULIER
Member, ICSU AB ad hoc Working Group on Applied Mathematics and Computer Science
Editor in Chief, Bulletin Signalétique

The desirability to create a Working Group on Applied Mathematics and Computer Sciences was discussed.

Taking into account the overlap of these fields with Physics and Mathematics and considering that the Member Services interested would be approximately the same, it was decided to postpone the creation of such a Working Group.

Therefore the problems will be discussed either in the Working Group in Physics or in the Working Group in Mathematics. If needed joint meetings of these Working Groups will be organized.

Bulletin Signalétique distributed for comments a scheme aiming at showing how the various fields are covered : (see enclosure)

Bulletin Signalétique Section 110
Computer and Control
Mathematische Zentralblatt

It was decided that the Bulletin Signalétique will enter Engineering Index in this scheme and will send it to other interested Services.

Further steps of cooperation in this field will be discussed at the next meeting of the Working Group in Physics.

XX : Completely covered X : Partially covered oo : Not covered	Bulletin signalétique section 110	Computer and Control CCA	Zentralblatt für Math. (same scheme as Math. Rev.)
Pure Mathematics	oo	oo	XX
Mathematical Logic	X	oo	XX
Graphs Combinatory analysis	X	X	XX
Numerical analysis	XX	X	XX
Computer Sciences (Theoretical	XX	XX	X
Computer Sciences (Applied	XX	XX	oo
Automation (Theoretical)	XX	XX	XX
Automation (Applied)	XX	XX	oo
Probabilities	XX	oo	XX
Statistics	XX	X	XX
Operational Research	XX	X	XX
Business Applications	XX	oo	oo
Mecanics	BS 130	oo	XX
Mathematical Physics	BS 130	oo	XX

S E S S I O N 2 :

REPORTS FROM MEMBER UNIONS AND MEMBER COUNTRIES

Chairman : K. FAEGRI

2.1. INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Information Services 1971 - 1972

by A.J.C. WILSON
IUCr Representative on the Board
Professor, University of Birmingham

After a quarter of a century of effort on the part of the ICSU AB, most scientific papers consist of a Title, an Abstract, and the Paper proper. Usually all information in the title is repeated in the abstract, and all information in the abstract is repeated in the paper at least once --- if not three times ± . No reader is likely to come into possession of a copy of the paper without having the abstract and title as well, nor to see a reproduction of the abstract without a reproduction of the title. The explicit repetition of information is therefore logically unnecessary, and justifiable in these cost-conscious and unleisured days only when necessary for understanding. In the field of crystallography many papers describing determinations of crystal structures fall into similar patterns, and repetition is dictated only by convention, and not by need for clarity. The International Union of Crystallography has therefore instituted a form of Short Structural Paper in Section B of Acta Crystallographica, in which the title and abstract are to be read as part of the paper, and information (particularly numerical information) is not repeated. In keeping with its enhanced status, the abstract is printed in the same large type as the rest of the paper. (Parenthetically, one may wonder why an abstract is conventionally printed in small type - probably it is scanned by ten times as many people as read the rest of the paper). It is expected that this short form of structural paper will reduce the bulk of the journal by at least ten per cent, and thus reduce the amount by which the subscription rates must be raised. A further development concerning the journals of the Union is the introduction of a deposition scheme for bulky material likely to interest only a few

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± In the introduction, in the body of the paper, and in the summary or conclusions.

readers. The scheme differs from most others in that copies of the deposited material will be provided free of charge on application to the Executive Secretary of the Union. Details of the innovations are given in Acta Crystallographica, volume B 28, pages +++-+++ and +++-+++.

The other information services of the International Union of Crystallography have continued along the lines already described (see the reports of the ICSU AB full Board meetings, 1970, pp. 171-175 and 1971, pp. 69-70). The following relevant publications have appeared during the year under review :

1. Structure Reports. Vol. 27 for 1962. Utrecht : Oosthoek, 1971.
2. World Directory of Crystallographers. Fourth Edition. Utrecht : Oosthoek, 1971.
3. Molecular Structures and Dimensions. Vol. 3.
   Bibliography 1969-1971.
   Organic and Organometallic Crystal Structures. Utrecht : Oosthoek, 1972.
   (This contains cumulative indexes for 1935-1971).
4. Index of Crystallographic Supplies. Third Edition. Utrecht : Oosthoek, 1972.
5. Crystallographic Book List. Second Supplement.
   Journal of Applied Crystallography, 5, 148-162 and 254, 1972.

Other directories etc, are in an advanced state. The journals Acta Crystallographica and the Journal of Applied Crystallography have appeared as usual. Publication delays have been greatly reduced, particularly for Acta B.

The International Union of Crystallography will hold its ninth General Assembly and International Congress in Kyoto, Japan, from 26 August to 7 September 1972. At the Congress, in addition to business meetings of the relevant Commissions, there will be open meetings devoted to "Data Storage, Search, Retrieval, and Publication" and "Powder Data".

2.2. INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
REPORT FROM THE IUGS GEOLOGICAL DOCUMENTATION COMMITTEE

by L. DELBOS
IUGS Representative on the Board
Director, BRGM Documentation Centre

During the last year, the work of the committee was directed into two directions :

1 - Coordination in the sector of automatic documentation
2 - Promotion in the working of bibliographic reviews

1 - Coordination in the sector of automatic documentation

The work was focused on the preparation of a multilingual thesaurus (Czech, English, French, German) in structural geology (Tectonics) in the joint ICSU AB - IUGS working group.

The members of the group (AGI, BfB in Hanover, BRGM, CNRS, Geofond in Praha, Geological Survey of Canada) have, at first, prepared a project of thesaurus in their own language. The comparison of the monolingual thesauri permitted the elimination of a certain number of words and to draw the great lines for a multilingual thesaurus first draft. The draft of the final version of this multilingual thesaurus has been presented at this session.

We must at last mention the efforts made by all national documentation centres in Europe for a closer cooperation. Thus, the French geological survey processes in its documentation system, the geological documentation indexed by the geological surveys of the following countries : Germany (RFA), Czechoslovakia ,,Rumania.

2 - Promotion in the making of bibliographic reviews

During 1971, only one "review" was published : "Salt crystallisation and rock weathering". Another one, on "Beach rocks" is being prepared.

It seems that for the time being, we have great difficulties to get other new studies. The Committee has drawn the attention of the IUGS committees and commissions on this problem, and the general secretary sent a circular letter pointing out the importance of these reviews.

During the International Geological Congress in Montreal (in August), members of the committee will be presented a new proposal so as to accelerate the production of the reviews.

During June 1972, on behalf of IUGS, the president of this committee went to USSR, so as to meet the Russian documentalists specialized in earth sciences, and ask them to participate in the Committee's work. The Russian authorities expressed their interest in documentation problems and international cooperation. It seems certain that a Russian representative will be nominated on the automation board and that professor Zhakarov will take charge of the question of "reviews" concerning the geological literature in eastern Europe.

2.3. INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

INFORMATION ACTIVITIES IN THE IUPAP,1972

by W.KOCH
IUPAP Representative on the ICSU AB
Director, A.I.P.

Activities have occured in various components of IUPAP that have a direct bearing on the programs of the Member Services of ICSU AB. Most of those activities are being coordinated by the Publications Commission of IUPAP. Therefore the present report will bear heavily upon the organization and wording of the draft of the latest Commission report of a meeting held on 12 May 1972.

The activities can best be presented under the four headings :

1 - Primary Journal program of the European Physical Society
2 - Primary Journal program of the American Institute of Physics
3 - Secondary service program of the American Institute of Physics
4 - Coordination of the IEE and AIP programs

1 - Primary journal program of the European Physical Society

Dr Bryan COLES reported to the Publications Commission that EPS has approved a list of journals for designation as Europhysics journals, on the basis of criteria for international editorial boards, regular refereeing procedures, etc. They must accept papers in any of the three languages and must provide an abstract in English for each paper. The only commercially published journals included so far are Physica and the Philosophical Magazine. The Czechoslovak Journal of Physics has dropped the Europhysics label. Although the Soviet Union participates in EPS, no Russian journals are on the Europhysics list.

The Commission is giving a great deal of attention to standardization and to exchange of information on printing techniques. In this connection, a new style manual has been prepared by EPS and will soon be printed in Europhysics News. Mr PEDERSEN of the Institute of Physics reported that their journals use monophoto composition which they find cheaper and more flexible than monotype, and offset printing. Such details may have a significant bearing on the economics of providing page proofs, etc. to ICSU AB Members in the future.

2 - Primary journal program of the American Institute of Physics

The AIP journals are being completely converted to offset printing, computer based photocomposition of "heads" and "tails" of all articles, and experiments on 35 mm master negatives for producing the photo offset printing plates. Thus, the production of the primary journals will result in two by-products of interest to ICSU AB Members ; first, a "heads" and "tails" computer tape containing titles, abstracts, and cited references to other articles, and second, a full text article microfilm that will serve as back-up to the computer tape.

3 - Secondary service program of the American Institute of Physics

AIP is now producing and marketing a set of four secondary services to supplement its primary journal publications program.

a - Current Physics Advance Abstracts (CPAA)

A monthly publication in 3 sections, providing abstracts arranged by subject classification of articles accepted for publication in 35 AIP journals.

b - Searchable Physics Information Notices (SPIN)

A magnetic tape with title, author, abstract, cited references, indexing and bibliographic data, covering about 70 journals.

c - Current Physics Titles (CPT)

A monthly publication in three sections, photocomposed from SPIN tape and arranged by subject classification, giving title, author and bibliographic data.

d - Current Physics Microfilm (CPM)

Microfilm containing the complete text of all journal issues published in the 35 AIP journals during the preceding month. The reel and frame number for each article is included as part of the data in SPIN and CPT.

The IUPAP Commission on Publications has recommended to AIP that all journals selected as Europhysics journals by EPS be included in SPIN and CPT.

4 - Coordination of the IEE and AIP secondary programs

IEE and AIP have recognized the desireability of coordinating their two secondary service programs so as to provide to users the fullest advantages of both operations. IEE has been providing a well accepted comprehensive coverage of the physics literature in its Physics Abstracts Service, while AIP has developed techniques for obtaining as by-products of primary journal operations certain secondary services that can represent major new assets to the Physics Abstracts operations. Consequently, agreements are being finalized to coordinate and rationalize certain of the services of IEE and AIP as early as 1973. Complete implementation of present plans should be possible by calendar year 1974.

2.4. NATIONAL SCIENCE LIBRARY

by N.A.SMITH
Chief Scientific Liaison Officer, Canada
(National Research Council)

It has not been possible for Dr. Jack Brown, National Science Librarian, National Research Council of Canada (NRC), or for a member of his staff to be present at this meeting. He sends his regrets and asked me to represent him on this occasion.

The National Science Library (NSL) has a collection of 800,000 books, bound periodicals and technical reports, which is increasing at the rate of about 6 % per year. N.S.L. currently receives 16,000 journals of which 500 are in the Russian language and obtained through our exchange agreement with the Academy of Sciences, USSR. A number of Chinese language journals are also received. Approximately 200,000 translations are held.

In Primary publications, NRC publishes ten (10) Canadian Journals of Research. There are Twenty-nine (29) other journals, which may be considered main scientific journals, not published by, but receiving financial support from N.R.C. A list of Journals is attached.

The situation with regard to secondary publications in Canada is under review at the present time. Among the several questions being studied is the relationship of the Arctic Bibliography to other abstracting and indexing services. The Arctic Bibliography, an abstract book published by the Arctic Institute of North America contains 100,000 abstracts and runs to fifteen (15) volumes.

The fourth edition of the Union List of Scientific Serials in Canadian Libraries was issued late in 1971. This machine readable List, which does not index individual articles or abstracts, contains bibliographic data of 43,181 distinctive titles, and is held in 224 libraries.

The recently established Advisory Board on Scientific and Technological Information, National Research Council of Canada, has initiated a number of studies and projects. The main ones are :

- Education and Training in Canada of Information Specialists.
- Traffic Patterns of Information and Expenditures on Information in Canada.
- Studies of the Copyright Issue and the Listing/Pricing of Information.
- A Project to Determine whether marketing techniques apply to Information.
- Support of a Specialized Computerized Information Centre (VIBANK) for Literature on Vibration.

List A : Canadian Journals of Research

Canadian Journal of Biochemistry
Canadian Journal of Botany
Canadian Journal of Chemistry
Canadian Journal of Earth Sciences
Canadian Journal of Forest Research
Canadian Geotechnical Journal
Canadian Journal of Microbiology
Canadian Journal of Physics
Canadian Journal of Physiology and Pharmacology
Canadian Journal of Zoology

List B : Canadian Scientific Journals supported by N.R.C.

Canadian Aeronautics and Space Institute Transactions
Canadian Agricultural Engineering
The Canadian Cartographer
Canadian Field-Naturalist
The Canadian Geographer
Canadian Journal of Animal Science
Canadian Journal of Plant Science
Canadian Journal of Soil Science
Canadian Journal of Chemical Engineering
Canadian Journal of Genetics and Cytology
Canadian Journal of Mathematics

Canadian Journal of Operational Research and Information Processing
Canadian Journal of Pharmaceutical Sciences
Canadian Journal of Psychology
Canadian Mathematical Bulletin
The Canadian Surveyor
Clinical Biochemistry
The Engineering Journal
Industrialization Forum : Systems Construction Analysis Research
Journal of the Canadian Ceramic Society
Journal of the Royal Astronomical Society of Canada
Maritime Sediments
Quebec Science
Revue Canadienne de Biologie
La Revue de Geographie de Montreal
Transactions of the Canadian Society for Mechanical Engineering
Arctic
Automatic Control
Science Forum

2.5. SCIENTIFIC AND TECHNICAL INFORMATION POLICY IN FRANCE

by J. MICHEL
France Representative

The scientific and technical information policy described below forms a part of French policy in relation to industrial and scientific development. It is based on an awareness of the increasing importance of such information, the limitations of the organizations at present responsible for handling it, and the needs of its users as a whole. At the same time, the policy seeks to ensure that France can make a contribution in this field at an international level, and also benefit from what is being done in other countries.

For these reasons, and because of the significant role of ICSU AB in regard to scientific and technical information, France has sought membership of the Board, is proud to have been elected a Member Country, and intends to work in close cooperation with the Board.

Following the preparatory work on the Sixth French National Plan, the proposals accepted by the Research Council (Commission de la Recherche) led to a general scheme for the organization of a national scientific and technical information network and for immediate action needed on various matters.

The basic points which emerged were as follows :

1) The objectives are :

   a) to bring to the notice of the scientific and technical community all information of interest, from whatever source, with the maximum speed, relevance, convenience and cheapness.

   b) to make accessible in a similar manner the documents concerned, or copies or abstracts of them.

2) All institutions and organizations dealing with scientific information should be combined to form a national network. In accordance with the objectives just stated, this network will have the two basic functions of notification and providing access.

3) The national network will comprise all documentation and information organizations grouped according to their subject fields, and so forming subsidiary networks. Thus what is needed is a reorganization rather than the creation of something new.

4) The national network will be directed by a small department whose functions are to define the general policy and see that it is carried out, to coordinate existing operations, and to initiate new ones. This department, the National Office of Scientific and Technical Information (Bureau National de l'Information Scientifique et Technique), is now being set up, and will be responsible for bringing about the specific actions resulting from the general scheme.

1. The subsidiary networks

The increasing volume of scientific and technical information has made it quite clear that the handling of this information can no longer be performed by a single organization; the responsibility must be shared. It has therefore been decided to distribute the work among various subject fields. This led to the idea of coordinated subsidiary networks, which has a number of definite advantages. First of all, it provides a modular (and hence flexible) structure, since extensive changes in one part can be made without affecting the remainder. From the management

point of view, it is much easier to check that a particular section is operating successfully and is financially self-supporting, than to do the same on a considerably larger scale. Lastly, because of the restricted size of each section, those in charge of it can be in much closer contact with the users and much more aware of their needs.

Conversely, if such an arrangement is to be successfull, the users of a particular section must recognize the need for relevant information, and must be prepared to pay appropriately for it.

1) The subject fields :

Any division of science and technology into several parts is to some extent arbitrary and may impede the organization and coordination of the national network. In particular, there may be problems arsing from borderline areas and possible overlaps. A pragmatic treatment is then necessary, but there are various criteria which can serve as guides. Even without specialized data such as the quantity of documents and the information sources, we may take a subject field to be fairly well described by the community of users concerned with that field.

This community may represent a scientific discipline, a mission, or a field of activity. The function of a sectionalized network is to meet the essential information needs of a given user. However, this does not mean that a user will find in one section all the information he needs; and that is why the subsidiary networks have to be combined to form a national network.

A number of working groups are at present considering the problem of establishing subsidiary networks in the following subjects fields :

Chemistry
Electrical science and engineering, electronics
Metallurgy
Mechanics
Nuclear Science and Technology
Biomedicine
Agriculture
Information science
Earth sciences, oceanography

2) Service in each field :

The policy adopted makes each section responsible for the principal services needed in information handling, namely :

a) Bibliographic notification (information input and output)
b) Critical analyses
c) Review notes
d) Data collection and data-bank formation

2. The purpose of a network structure

Subsidiary networks :

At the present time, there are many documentation centres working in the same subject field and devoting much of their efforts to collecting, analysing and distributing the same information to a limited group of users.

By means of a network organization, these centres could achieve an appropriate division of labour, thus extending their range of coverage, improving the quality of their service, reducing their charges, making their operations financially self-supporting in due course, and providing more complete information to all their customers.

The network need not be limited to public documentation centres, and it is desirable that industrial documentation services should be included to the greatest possible extent. Since the contribution of such services to the network will be paid for, and the charges to all users of the

network will be the same, it is clear that the industrial services, as active participants, will obtain much more complete coverage of information at a price similar to or less than their present expenditure.

Each subsidiary network will in fact be a "cooperative" dealing with all information except what is confidential. Although such a system must of course make use of the practical facilities of various participants, the control of and responsibility for its operations cannot be entrusted to any one institution; they must lie with a "nucleus" chosen from among all the participants and working closely with the National Office. This procedure ensures independence and will assist the settling of any differences of opinion.

The national network

This will comprise all the various general or specialized bodies concerned with scientific and technical information.

It will be necessary to work out a number of agreed rules, both general (prohibiting monopoly, guaranteeing access to all, etc.) and specialized (standardization of input and output processing methods, common language, standardized description of documents, standard paper or tape format, etc.). Close relations must be established between the constituent subsidiary networks and general services, so as to ensure that information is readily transmitted and not restricted to each section individually.

In a fully integrated system, it will be possible to gain access to the whole network from any point of entry. This will of course be made easier when automation becomes widely used, but such integration also demands a positive policy of cooperation between the constituent members. To ensure the development of this cooperation will be one of the National Office's most important functions.

Conclusion

The scientific and technical information policy defined above, based on an organization of sectional networks, should allow both scientific and technical information to attain a much wider circulation, since all the documentation services of government establishments and industry will be involved. In addition, it is reasorable to suppose that such an organization will enable the various networks to become financially self-supporting in due course. However, the initiation of these operations will certainly need government support, which will be made available to the extent that the operation concerned forms part of the policy defined above.

S E S S I O N 3 :

REPORTS FROM MEMBER SERVICES

Chairman : N.DUSOULIER

3.1. THE AMERICAN WATER RESOURCES ASSOCIATIONS INFORMATION RETRIEVAL SYSTEM

by K. D. PAIK
Editor of Hydata and Water Resources Abstracts

Introduction

Throughout the world, technical information is produced and published in vast quantities. This knowledge is generated by individual engineers or scientists of governmental agencies, universities, as well as of industry. This information includes the methods, results, conclusions, and applications of research. This material is reported in many ways-- e.g., a paper may be read at a conference, an article may be published by a professional journal, or a book may be written.

So numerous are the sources of information, that it is virtually impossible for scientists and engineers to obtain all the information that is available. This affluence of information, often called "the information explosion", is no doubt a matter of great concern and concerted action is needed to determine how to cope with it. A number of organizations both in the United States and Europe have engaged in information retrieval systems for the best possible development of acquisitions, announcement, retrieval and dissemination.

American Water Resources Association (AWRA) was founded for the purpose of providing scientists and engineers, especially those who are exclusively engaged in water resources science and technology, with the best possible information that is available throughout the world. The three main objectives[1] of AWRA are reflected in the basic principles of the Association.

Past and present information retrieval system of AWRA

The third objective as formulated in the Constitution of AWRA ("the collection, organization, and dissemination of ideas and information in the field of water resources science and technology") is the basis for the devices which have been developed by the Association in the area of information retrieval.

AWRA has its own information retrieval system which is different from SDI (Selective Dissemination of Information) which have been adopted by a number of organizations both in the United States and Europe as a means of dissemination of information.

"The aim of SDI" as Mr SCHULER points out in his article entitled "Selective Dissemination of Information", "is to provide a regular alerting service on selected subjects, defined by the user, to newly published reports, journal articles, patents and other documents having a high probability of interest to the user. The basic element in modern SDI services is the matching, by computer, of two data files. One is the bibliographic data file of new documents, the document profile. This file includes terms describing the subject content of the document (descriptions) and other details of the document such as the author, corporate source, etc. The other file contains the user's subject interest or search file. The computer will compare these two profiles and print out references to documents whose profiles match the search profile. Those references are then sent to the user".[2]

The AWRA information retrieval system is not performed by means of computer. Everything is handled manually. If there is any distinction, it may be this--that conscious efforts are made to avoid complicated classifications and artificial schemes which might interfere with efficient retrieval. There is probably little doubt, that the difficulties experienced in the computer projects are mostly traceable to the cumbersome system of classification and cataloguing practiced for several generations.[3]

The information retrieval system of AWRA was started in 1965. Dr IBEN said in his article which was presented at the ASCE National Meeting on Water Resources Engineering, New Orleans, 1969 that "The activities of the Association began with the collection of journals extant in water resources science and technology, on a world-wide basis, even before publication. From the beginning, this has meant periodicals dealing with water, from basic hydrology to water pollution and desalination, as well as such journals as publish only a few articles on water

topics in each issue or in occasional issues only. Practically all editors have been willing to cooperate on the basis of mutual benefit, i.e., they agreed to have the tables of contents of their journals published in a monthly planned by the Association as a central bibliographical focus in return for sending the issues of their journals as they came out. In 1964 a trial-issue of this new periodical was issued in Urbana, Illinois, under the title of Hydata. This journal began publication with the January-issue for 1965 and has continued to this date ; it bears the subtitle : "A Monthly Title List and Index of the World's Scientific Literature in the Field of Water Resources". Along with slight changes in the format, from time to time, has gone a continuous campaign for further additions to the list of journals covered. The periodicals dealing with water matters only in part were dealt with in a separate chapter, beginning with the issue for July 1965. By the end of 1966 enough monographic literature had been brought together to include a list of it in the January-issue of 1967. A special campaign for water-related publications issued by federal, state and municipal agencies, public and private colleges and universities as well as private corporations or institutions, during early 1967, assured a constant stream of monographs, reports, irregular serial publications and some additional journals. Claims for missing issues and special card requests for items that come to the attention of the editor are sent continously. The backlog of journals and titles to be listed is considerable, so that Hydata could easily be expanded, as soo.. as it would be economically feasible.

Early in 1966 AWRA began experimenting with indexing the contents of Hydata, first having separate indexes for authors and key term index rather than keywords. The author index was abandoned soon, the keyword-index was carried up to the end of 1968. The program for the computer-based index (IBM-1240) includes additional data which are not published in Hydata, but can be used for additional purposes. Thus AWRA has published a complete bibliography of all articles and books listed in the 1967 issues of Hydata, together with the integrated keyterm index for that year. This publication was called Hydor, a volume of 286 pages. Another important publication based on the American Water Resources Association Library in Urbana is the Water Resources Abstracts which have been published since 1968. [4]

So far as the present information retrieval system of the AWRA is concerned, both Hydata and Water Resources Abstracts have been playing very important roles. Let us go further into the characteristics of both publications mentioned above.

Hydata

Hydata first appeared in January, 1965. It generally comprises the reproduction of the whole tables of contents of most important periodicals in the water resources field, the titles of pertinent articles from periodicals not entirely devoted to water resources, and the titles of series, reports, monographs, etc. Titles in Hydata cover scientific papers but also cover reports, reviews and application oriented publications each month from all over the world.

This title-based information is included in Hydata in several different formats for the reader's convenience. Namely, Hydata consists of two parts : Part I and Part II. Part I is comprised of (A) A List of Periodicals Indexed, (B) Tables of Contents of Periodical Literature, (C) Selected Articles of Periodical Literature, (D) Tables of Contents of Non-Periodical Literature, (E) Selected Titles of Non-Periodical Literature, and (F) Lists of U.S.A. and Foreign Patents.

In the "List of Periodicals Indexed" all the periodicals included in Hydata are listed in an alphabetical order, and their publishers, dates of publication, and the pages of the occurrence of the periodicals are listed. In "Tables of Contents of Periodical Literature", all the tables of contents which have something to do with water resources are reproduced. In "Selected Articles of Periodical Literature", articles concerning water resources are selected from the borderline journals (non-water journals) received by AWRA.

So far as "Tables of Contents of Non-Periodical Literature" are concerned, the tables of contents are selected from the publications such as annual reports, conference proceedings, etc., and they are reproduced in Hydata. In "Selected Titles of Non-Periodical Literature", titles related to water resources are selected from the non-journals. Finally, in the "Lists of U.S.A. and Foreign Patents", current registered titles of patents are listed in terms of titles, registry numbers, registry dates, and patentees. All the titles included in Hydata are provided with the bibliographic description such as author (s), title, affiliation, date of publication, etc.

Water Resources Abstracts

Water Resources Abstracts is an outgrowth of the Association's information retrieval system and is brought together from the journals listed and indexed in Hydata, the Association's current awareness monthly. All abstracts are prepared according to the scheme used by the Engineers Joint Council, provided with the title entries, key terms, full references to source and a space for filing devices by the prospective subscriber.

A form of presentation has been chosen in accordance with the EJC information retrieval plan and also used by ASCE. This not only provides the best presentation but also guarantees uniformity with other organizations involved in information retrieval procedures. The title of the article is to be found at the top of the abstract for quick identification of the subject. The key terms are selected primarily from the Water Resources Thesaureus, November 1966, and provide a quick reference to the contents, whereas the abstract itself gives as complete information about the article as possible. The last line gives the reference with author(s), title, source (Journal, proceedings, etc.), and date of publication.

The Water Resources Abstracts, published monthly, contains approximately 200 abstracts in the 46 categories. An index sheet is provided with each monthly issue which shows the number of abstracts published in each category with the page numbers. Abstracts may not be published for all categories each month. The abstracts are provided in a loose-leaf bond paper format that will allow cutting and placing on a 3 x 5 index card. Perforated index stock are also available, if specially ordered.

Conclusion

The American Water Resources Association is very much concerned about the effective management of the present information retrieval system. Hydata, a product of the American Water Resources Association and a up-to-date coverage of international water-oriented, journal articles, illustrates title-based compilations of title pages can be produced rapidly, thereby becoming available to the users at frequent intervals with up-to-date coverage, and can provide the scientist with a system for general and rapid browsing through large numbers of documents. [5]

In order to handle the AWRA's information retrieval system effectively, it will be important to acquire all the possible information that is available in the field of water resources science and technology. However, it is practically impossible to secure all the information unless we build an organization similar to the Soviet All-Union Institute of Scientific and Technological Information which provides the Soviet scientist with singlesource access to over 800,000 documents a year from 102 countries. [6]

Even though the United States has not established a centralized information retrieval center, it may be, to a certain extent, possible to collect all the information with the aid of an information-oriented private corporation or Federal agency that now exists in the United States.

The acquisition of all the possible information concerning water resources may enhance the quality as well as the quantity of Hydata and Water Resources Abstracts. A well-organized Hydata and a well organized Water Resources Abstracts can be produced.

For the purpose of the expansion of the present information retrieval system, AWRA is in touch with the following four major abstracting services : American Geological Institute, BioSciences Information Service of Biological Abstracts, Chemical Abstracts Service, and Engineering Index, Inc. These four organizations produce approximately 13,500 titles related to water resources a year. Those titles with bibliographic descriptions will be supplied to American Water Resources Association with financial aid from the National Science Foundation.

With this additional input AWRA's retrieval system would not only be able to provide the most comprehensive and best possible information concerning water resources in the world, but also enable subscribers of AWRA to find all the information they need in one comprehensive reference book. It would save them valuable time and effort in searching for the very information that they need through the various sources of scattered information.

References

[1] Three principal objectives of the American Water Resources Association :

a. the advancement of water resources research, planning, development and management ;
b. the establishment of a common meeting ground for engineers, and physical, biological, and social scientists concerned with water resources ;
c. the collection, organization, and dissemination of ideas and information in the field of water resources science and technology.

[2] Schuler, S.C. Selective Dissemination of Information. (In : Scientific and Technical Information, Why, Which, Where and How, 1971 : 5-1--5-8, esp. 5-1).

[3] Iben, Icko. Comprehensive Information Retrieval in the Field of Water Resources. (Presented at the ASCE National Meeting on Water Resources Engineering, New Orleans, La., February 3-7, 1969).

[4] Ibid.

[5] Long, B.L. The State of Communication in the Sciences. (In : Proceedings of the First Annual Meeting of the American Water Resources Association, 1965 : 314-323, p. 322).

[6] Ibid., p. 323.

Appendix

HYDATA

Volume 1, No. 1-12	1965
Volume 2, No. 1-12	1966
Volume 3, No. 1-12	1967
Volume 4, No. 1-12	1968
Volume 5, No. 1-12	1969
Volume 6, No. 1-12	1970
Volume 7, No. 1-12	1971
Volume 8, No. 1-8	1972

WATER RESOURCES ABSTRACTS

Volume 1, No. 1-12	1968
Volume 2, No. 1-12	1969
Volume 3, No. 1-12	1970
Volume 4, No. 1-12	1971
Volume 5, No. 1-8	1972

3.2. ASTRONOMY AND ASTROPHYSICS ABSTRACTS
REPORT OF ACTIVITIES

by F. HENN, Editor-in-Chief
Astronomisches Rechen-Institut
Heidelberg

During the past year Astronomy and Astrophysics Abstracts has continued to provide two printed volumes with about 13000 abstracts from papers of the year 1971. The papers from all fields of astronomy, astrophysics, extraterrestric research etc. and their border fields have been selected from about 600 periodicals and have been classified in one of the 108 subject categories. Volume 5 of AAA contains 515 pp. and appeared in December 1971, Volume 6 with 571 pp. has been published this month. In spite of many difficulties during this year the main purpose of our service has been reached namely, of making available the abstracts eight months (on the average) after the publication of the papers. The steadily growing flood of astronomical publications, conference reports, books etc. has forced us to give more condensed abstracts, or, in cases where author's abstracts give effectively no better information than the title, we present the title, the authors and the source only. In astronomy there are a number of amateurs which participate in astronomical observations and publish their observations in popular journals. From these journals we select only review articles and communications on observations without abstracts.

The cooperation with the authors of astronomical papers all over the world was of very great value for our service. They send their abstracts very quickly, furthermore they provide us with information on corrections to their papers so that in many cases we are able to publish in our abstracts already the corrections and addendas to the original papers.

On account of the good sale of our "Abstracts" the Springer-Verlag proposed to reprint the second and third volume, since the first edition of these volumes is already exhausted. To make available a full series of the abstracts to our users we decided to reprint these two volumes.

From reviews of our abstracts we learned that the present state of our documentation is considered to be extremely useful and of "basic importance for astronomers, space scientists and others specialists involved in the study of the universe", or from another review "AAA displays an excellent coverage of the literature with good crossreferencing and indexing". During a conference of astronomers, one of the members of the commission on astronomical documentation stated that the astronomical community needs such a printed service and that at the present time no current awareness service or data b[illegible] seems to be necessary.

3.3 BIBLIOGRAPHIE DES SCIENCES DE LA TERRE - BULLETIN SIGNALETIQUE BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES

by J. GRAVESTEIJN
Bibliographie des Sciences de la Terre-Bulletin Signalétique Representative

The "Bureau de Recherches Géologiques et Minières" in Orléans and the "Centre National de la Recherche Scientifique" in Paris decided last year to publish jointly a bibliography in the field of the Earth Sciences.

Untill the end of 1971 the BRGM produced an index Journal "Bibliographie des Sciences de la Terre" covering 30 000 documents yearly and published in 8 sections.

The Documentation Centre of the CNRS, publisher of the "Bulletin Signalétique" included until 1972 three geosciences sections in his abstracts journal. 20 000 documents were cited each year in this section.

The decision to join the efforts of both centres in order to improve the efficiency and exhaustivity in the geological information resulted in a joint publication "Bibliographie des Sciences de la Terre - Bulletin signalétique".

This new secondary journal includes 8 sections covering the whole field of the geosciences excepted geophysics. This last subfield will be covered by Bulletin signalétique in one of his own sections.

The cooperation of the specialized documentation centre of the BRGM (French geological Survey) and the CNRS which covers for his Bulletin Signalétique the whole field of Sciences garantees an optimal coverage of the world literature in the Geosciences.

It is excepted that for 1972 the printed output (geophysics not included) will contain over 25 000 citations, 10 000 of which will be abstracted and all indexed.

Indexing techniques will be developed jointly. At present a controlled vocabulary is used which was created in 1967 by BRGM and which has been developed and completed since then by both services.

The indexing and abstracting work has been shared, the input is done by CNRS in order to integrate the printed output in the PASCAL system.

The bibliographic descriptions, indexing terms and abstracts are recorded in machine - readable form in the specific formats of both centres.

SDI and retrospective searches are available from both services each of which remain independent for the development of search techniques.

Tapes will be available in a near future in the BRGM and in the CNRS format.

3.4. BIOLOGICAL ABSTRACTS: BIOSCIENCES INFORMATION SERVICE OF BIOLOGICAL ABSTRACTS (BIOSIS)

by Ph. PARKINS
Executive Director, BIOSIS

Through the past year BIOSIS has sought to take advantage of its capability for mechanized retrieval to produce specialty services to match the specialized interests of individuals or of relatively small groups of biologists. Thus, we focused increased effort on perfecting and promoting our highly customized search service, C.L.A.S.S. (an SDI type) as well as services based on standard and group profiles. We increased, also, the number of retrospective searches performed--on a data base now giving access to approximately 2 million documents. It should be mentioned in passing that one very useful byproduct of searching ones own data base is the opportunity to discover characteristics that may cause problems for other users.

Late in 1971, BIOSIS launched a new abstracts journal--Health Effects of Environmental Pollutants (HEEP)--with the collaboration and financial support of the Toxicology Information Program of the National Library of Medicine. This publication combines material selected from both BIOLOGICAL ABSTRACTS and MEDLARS and contains about 1000 abstracts per monthly issue. Author and subject indexes appear in each issue, as well as a simple marginal coding to indicate subtopics of the major field covered. A companion tape service is also available. It includes full bibliographic citations, without abstracts.

In April, 1972, BIOSIS introduced BioResearch Today, a specialty abstracts series, also designed to correspond to information interests and needs of relatively small groups of specialists. BioResearch Today is the general title for a series of monthly journals covering specific subjects of investigation.

Each monthly issue contains between 100 and 200 references selected from the BIOSIS machine readable data base by means of a computerized "profile", developed by our staff biologists and information scientists, to retrieve pertinent references for each publication. Each reference is accompanied by an abstract from BIOLOGICAL ABSTRACTS.

These publications are intended to provide convenient yet inexpensive browsing and alerting tools which will focus on the pertinent abstracts the researcher requires to be currently informed on his subject specialty. They are designed as desk top reference sources for the individual scientist and the subscription price ($25 yr.) is within the budget of many individuals. Subscriptions are on a calendar rather than volume year basis, from month of receipt.

Subject areas represented by the first group of journals which constitute the series are listed below :

Addiction
Bio-Engineering and Instrumentation
Birth Defects
Cancer A--Cancerogenesis
Cancer B--Anticancer Agents
Cancer C--Immunology
Environmental Pollution
Food Additives and Residues
Food Microbiology
Human and Animal Aging
Human and Animal Parasitology
Human Ecology
Industrial Health and Toxicology
Pesticides
Population, Fertility and Birth Control

Other titles may be introduced subsequently. We urge our readers to keep us informed of specialties which in their opinion justify such treatment.

3.5. BULLETIN SIGNALETIQUE
PROGRESS REPORT 1972

by M. DUSOULIER
Editor-in-Chief, Bulletin Signalétique
du C.N.R.S.

Since August 1971, the Documentation Centre has settled in new premises in Paris

26, rue Boyer - Paris 20e

This move has permitted us to dispose of much more room for a better organization of work and also more efficiency.

Progress of automation

Born in 1971, System P.A.S.C.A.L. has grown in 1972, involving 34 of the 44 Bulletin Signalétique sections, and will attain completion in 1973.

Improvements in Biological and Medical Sciences

Six chapters have been published separately in 1972 in these domains :

- Biomedical Engineering. Medical Information Processing.
- Vertebrate physiology.
- Dermatology.
- Ophtalmology.
- Oto-rhino-laryngology.
- Anaesthesis.

This separation of the old section of Pathology will be achieved in 1973 with the publication of the following independant chapters :

- Diseases of the chest, heart and vessels.
  Vascular and thoracic surgery.
- Digestive diseases. Abdominal surgery.
- Kidneys and urinary tract diseases and surgery.

- Nervous system diseases. Myopathics. Neurosurgery.
- Bones and joints diseases. Orthopedics surgery. Traumatology.
- Blood diseases.

Important changes within other sections of Bulletin Signalétique.

- Information Science. Documentation.

The Classification scheme has been completely changed and can now be compared with those of Information Science Abstracts, Library and Information Science Abstracts.

For 1973, cooperation is intended to collect most of the documents issued in romance languages.

- Water engineering. Atmospheric pollution.

The coverage will be extended in 1973 to noise pollution and solid waste disposal.

Common publications

An agreement has been concluded between C.N.R.S. and B.R.G.M., for a common publication of Bulletin Signalétique and Bibliographie des Sciences de la terre, published in eight monthly journals since January 1972 :

- Mineralogy. Geochemistry. Extraterrestrial Geology.
- Economic Geology.
- Cristalline rocks.
- Sedimentary rocks and marine geology.
- Stratigraphy. Miscellaneous and areal geology.
- Tectonics.
- Hydrology. Engineering geology and surficial formations.
- Paleontology.

Primary documents are divided between the two documentation centres, then abstracted, indexed, and entered into System P.A.S.C.A.L. for processing and publication on tape and paper.

Another agreement has been signed on the same basis between C.N.R.S. and Institut de la Soudure, French correspondent of the Welding Institute.

SDI is effectively working.

Standard as well as individual profiles have been tested and are now operational. The subscription is free of charge for the first three months, allowing the subscriber to modify the question to match perfectly his preoccupations.

Magnetic tapes.

We intend to publish in the near future a detailed study on the content and format of our tapes.

FORMAT : Tape : 9 tracks, 800 or 1600 bpi.
EBCDIC code (IBM 360 standard)

MAIN CONTENT :

Classification index
Sequential number
Authors
Authors affiliation
Original title
Original language (coded)
Translated title (in french)
References
Abstract
Descriptors
Links

Testing of Reference Manual.

Le Bulletin Signalétique took part in the testing of the Reference Manual. Both the Pilot Test and the Main Test were undertaken and returned to Miss Wood with comments both on details in the Manual and on the determination of publication types and bibliographic levels. Although Bulletin Signalétique has only the first draft of the Manual, work has already started to adapt B.S. usage to UNISIST recommendations and a new worksheet will be used in 1973.

3.6. CHEMICAL ABSTRACTS SERVICE PRESENT AND FUTURE. PART III

(See Proceedings ICSU AB I45-8(I970) for Part I and Proceedings ICSU AB 45-47(I971) for Part II)

by Dale B. Baker
Director, CAS.

Progress on Implementation of CAS Target System

In my previous reports, the CAS Target System was described in detail. All of CAS issue, volume, and collective indexes are now being made available in the computer-readable CA Integrated Subject File (ISF). In addition, approximately 20 % of the CA abstracts in 1972 are being produced through the computer-based system. The remainder of the sections of abstracts will be shifted to computer-based processing in approximately equal increments over the 1973-75 period.

Some 800 million characters will be printed in CA 1972 abstracts and indexes (137,400 pages). This output will result from recording only 550 million characters of which nearly 60 % will be processed through the new automated production system.

CAS Chemical Registry System

Since 1965, some 2,003,000 unique chemical substances have been registered in the CAS Registry System. In 1971, there were 1,171,084 registry transactions alone. Approximately 350,000 new chemical substances are being added to the system each year. During 1972-73, CAS will install a system which automatically converts index names to the same unique, computer-readable structural record used in the Registry.

New Computer Installation

An IBM System 370 Model 165 (1.5 million byte core memory) was installed in early February. This represents a considerable improvement in capacity and speed over the IBM 360/65. This was a change in central processing unit only, with changes in the peripheral equipment complement scheduled to occur in several steps later in the year. The installation of the 370/165 went smoothly and was accomplished without disrupting normal production schedules. No reprogramming of the some 750 existing operating programs was required.

By installing the equipment at this time, we have insured, from the hardware standpoint, CAS ability to produce the 46 volume Eighth Collective Index in 1972-73 on schedule, and have also provided additional capacity for further system development and extension as projected in our five-year program.

Automated Editing Techniques

At the Seventeenth Open Forum in April, CAS presented four status reports on Automated Editing : (Part I) "General Objectives and Principles", by Dr. Ronald L. Wigington, Director of Research and Development ; (Part II) "Information Recording" by Sue Gehring, Production Manager, Production Operations Division ; (Part III) "Editing of Bibliographic Data" by James L. Wood, Director, Bibliographic Support Division ; and (Part IV) "Editing Technical Content" by Dr. Russell J. Rowlett, Jr., Editor. These reports describe current and anticipated applications of computer-assisted editing techniques. Copies of the summary of these reports are available free upon request.

Some Current R&D Projects

Significant accomplishments have been achieved in recent years through a program of thirty or more R&D projects each year. This program has been funded to a major extent by the National Science Foundation. Recently completed R&D projects include the following : Studies on the applicability of high-level programming languages ; unified pilot publication system, collective index processing, nomenclature translation program, substructure searching, registry redesign, systems engineering and data input development. Some R&D projects in progress include Registry adjustment, on-line experience (bibliographic text input, free-text edit, and structure input), graphics problems, and structure processing display.

Future

A. Continued close working agreements with Gesellschaft Deutscher Chemiker (GDCh) and the United Kingdom Chemical Information Service (UKCIS) have demonstrated the long-term feasibility of shared responsibility in the developing production systems. Both are providing abstracts, bibliographic data, and concept identification (indexing material) for direct input. It is the intention to develop this cooperative program so that processing tools installed at UKCIS and GDCh which in time will result in fully processed, computer-readable form for direct merging with data processed at CAS.

B. Economical telescoping of primary/secondary processing depends upon (1) strong cooperation of the corresponding editorial operations and (2) modularization of input, processing and output functions to avoid staff interactions with the data flowing through the production systems. Our initial activities in this area are in the planning, designing, and testing stages. Such interlinkage of operations will undoubtedly be extended and broadened into more efficient production as the techniques and equipment for computer-graphic processing becomes available.

C. It is anticipated that more automated management techniques and tools will become available as CAS systems develop.

D. A reasonable cost per unit of information processed inherently requires full and efficient utilization of processing staff and facilities. Further reductions in real costs per unit of information processed can be anticipated through long-term cooperative programs and the use of modern processing methods.

3.7 CHEMIE INFORMATION UND DOKUMENTATION BERLIN

REPORT OF ACTIVITIES, PART III

(See Part II : 1971 Proceedings (Orléans) pp. 49-50)

Chemie-Information und Dokumentation Berlin (CIDB) is not an abstracting and indexing service in the common sense. Several divisions in CDIB are doing different jobs and are cooperating with various organizations.

1. Beginning with 1972 the information service "Chemischer Informations-dienst" (ChemInform) is no longer published in two parts. The weekly issues of ChemInform now contain abstracts or expanded titles from journal articles considering inorganic, physical or organic chemistry aspects. This combined issue is edited by Bayer AG and CIDB. Each issue contains an author index and a compilation of all the classification codes identifying the main headings of each paper. The order coincides with that of the ChemInform classification system. In 1972, 23.000 papers will be selected out of about 250 main journals and cited in ChemInform.
2. The availability of searchable structures is important for retrieval purposes. For this reason scientists are encoding structural diagrams and reaction schemes, which appear in ChemInform, using the GREMAS-code. The notations of structural fragments are key taped and the tapes are sent for further processing to the IDC Internationale Dokumentations-gesellschaft für Chemie in Frankfurt.

   Another group of CIDB is using the RINGDOC-code for describing organic compounds and compound classes and subject entries as well. The basic material which has to be processed are pharmaceutical patents. The addressee of these products is a group of pharmaceutical companies.

3. The cooperation of our German input Division with CAS was intensified. Due to the increase of that division the number of selected, abstracted and keyworded papers and patents grew. The experiment to abstract and index a paper in one single step was successful. Thus, in 1971, 50 % of the abstracted papers and patents have been also indexed. In 1972, this figure will approach about 80 %. One scientist who stayed for one year at CAS in Columbus is exploring the possibility of transferring the typed information on tape by using the equipment we have available in Berlin.

4. SDI-Services are provided by using CA-Condensates. At present we search nearly 250 profiles. The profiles consist of search terms linked together by the Boolean operators 'and', 'or', 'not' as well as the logic operators 'ignore', 'phrase', 'within'. Until now the service is offered free of charge. The tape service subscription rate and the production costs are paid by the government. The governmental support is needed to introduce such tape services in Germany. Besides this other tapes are tested for SDI purposes, e.g. Chemical-Biological Activities (CBAC) and next to this Chemical Industry Notes (CIN).

5. Other activities are as follows :

   5.1 - Since CIDB has some experience with the production of indexes and thesauri via computer in the past year we were engaged to write programs for the German version of the TEST-thesaurus and thesauri of other institutions. Programs were written, too, to prepare author indexes for Zentralblatt für Mathematik.

   5.2 - Furthermore we took part on testing the reference manual for the handling of bibliographic descriptions.

   5.3 - A second supplement of the "Trivialname-File" was prepared and published recently.

3.8 ENGINEERING INDEX, Inc.

by Bill M. WOOD
Executive Director,
Engineering Index

The year 1972 marked for Engineering Index, Inc. the beginning of the actual conversion of its production methods to a completely operational computer-based system before the end of the year. The new production system permits Engineering Index to upgrade from its past paper-tape-rekeying operations to straightforward keyboard-to-magnetic tape procedure. Engineering Index's modernized production system offers greater flexibility in the production of Engineering Index's present printed and computer tape products, in an improved appearance and readability of the printed page produced by computerized typesetting, and in the development of new information products planned for the future. New production methods enable a cut in Engineering Index's past production cycle of four months or more, down to a more reasonable six weeks.

Current production innovations at Engineering Index have been made possible in part by financial support from the National Science Foundation. The computer typesetting program is the first subprogram of Engineering Index's goals that will extend over a several-year period to meet the total information needs of engineers. The complete program is timed to improve Engineering Index's central role as a unique reference guide to the increasing body of current, interdisciplinary engineering literature in the holdings of the Engineering Societies Library.

Several new operating systems or procedures have been developed to optimize editorial and clerical output. The growth in the number of items in the Engineering Index data base, over 85,000 in 1972 from 53,000 in 1969, can be attributed in part to a greater and continuing involvement of staff members in the activities of engineering and related communities.

The changing emphasis in engineering, expanded journal coverage, and revised article selection have resulted in greater numbers of references to pertinent information in environmental engineering, bioengineering, water resources and oceanography, ecology, urban problems, safety, and transportation as well as a growing awareness of the interrelationships of engineering and the social sciences and humanities. Computer and systems engineering received a particularly noticeable increased emphasis.

3.9 EXCERPTA MEDICA FOUNDATION

REPORT

by Robert R. Blanken
Executive Chief Editor

Products and activities

There are now 40 titles in Excerpta Medica's regular series of English-language, computer-produced, abstract bulletins, each covering a particular biomedical speciality. The abstracts in each issue are arranged according to a detailed decimal classification system and each issue has both author and subject indexes, cumulated annually. The information for these monthly bulletins is obtained by screening over 3,400 biomedical periodicals, yielding approximately 100 issues per working day or 260,000 articles per year for the foundation's data bank. Each of these abstract journals includes not only material from periodicals devoted to the pertinent speciality, but also relevant information from general medical journals, books, and publications dealing with other biomedical and related disciplines.

Taken together, these 40 abstract bulletins or "sections" provide more or less complete coverage of what Excerpta Medica has defined as the biomedical area, i.e., human medicine and related disciplines and those aspects of the basic biological sciences with some relevance to human medicine. This generally excludes veterinary medicine, although many veterinary journals are screened for articles on comparative pathology

and epidemiology. It also excludes nursing, dentistry to the extent that this refers to the filling of carious teeth and fitting of prostheses, psychology, and such paramedical professions as podiatry, optometry, and chiropractic.

There are also two sections which go considerably beyond the scope of coverage as defined above, namely, Health Economics and Hospital Management, and Environmental Health and Pollution Control, both published with the financial support of the Netherlands government. Whereas the first of these delves into the financial aspects of health care, public health policies, and hospital management, the second covers all aspects (biological, chemical, economic, legal, medical, sociological, and technological) of air, water, and soil pollution, noise hindrance, and radioactivity. Some 50 hospital-management and financial journals have been added to the biomedical collection to provide additional material for "section 36", while Environmental Health and Pollution Control is based on the cooperative screening of Excerpta Medica, the Royal Netherlands Academy of Sciences, the Agricultural Institute PUDOC at Wageningen, and the University of Technology at Delft; this cooperative effort provides coverage of health-related material in some 20,000 periodicals.

In addition to the computer-produced abstract journals of the regular series, Excerpta Medica produces some 20 "special services" or abstract bulletins and bibliographies designed to cover only the very best literature in more highly specialized subject areas. These sponsored services appear 2-6 times a year and contain only abstracts of special interest to the professional field covered. Sponsoring agencies are usually pharmaceutical companies, scientific societies, or governmental institutions; some are published in several languages simultaneously. Utilizing the searching capabilities of the computerized data bank, this department also produces retrospective bibliographies and annual collections of abstracts on special topics.

One of the most valuable and comprehensive sections of Excerpta Medica's computerized data bank is the drug literature service of Drugdoc, a service designed to include all significant information on the biological effects of chemical compounds, particularly drugs and potential drugs. The input into this service is derived from the screening of not only the 3,400 biomedical journals regularly screened for Excerpta Medica, but also some 200 specially selected chemical and pharmaceutical journals. It includes articles which describe the effects of drugs, related compounds, and naturally occuring exogenously administered substances on biological substrates (human or animal tissues or organ systems, bacteria, tissue cultures, cells, etc.). The input also includes articles describing the chemical synthesis, structural analysis, or assay of com pounds either known to have biological activity or suspected of having such activity on the basis of their chemical structure.

This service is specially characterized by its magnitude (about 55,000 articles per year or 20 % of the entire data bank), the speed with which the information is processed for computer input (classifications and index entries on the tapes within 8 weeks after receipt of the original article), and the depth of indexing from three different points of view : pharmacological, medical, and chemical. Retrieval of this information is on the basis of a classification system with 190 subcategories, indexes containing generic, chemical, and trade names as well as manufacturer's names and code designations, medical indexing terms (indications, contraindications, and adverse reactions), authors, journal title or Coden, year of publication, language, country of origin, the chemical structure (Wiswesser Line Notation), and item-index numbers describing the nature of the article, routes of administration, geographic concepts, and the names of the experimental animals.

Although Drugdoc is primarily intended as a computer tape service, a somewhat simplified version containing all the citations and permitting retrieval via the drug classification, generic name, author's index, and a monthly list of " new drugs" is available in printed form under the title Drug Literature Index.

A special by-product of Drugdoc is the monthly publication of Adverse Reactions Titles, an indexed bibliography of articles dealing with drug side-effects. This is one of the few Excerpta Medica publications which does not contain abstracts, although many of these articles listed are abstracted later for other sections. Retrieval is via the authors' names a pharmacological classification system, and the type of rotated index of medical and chemical terms also found in the other Excerpta Medica journals.

Computer tape services

With the advent of its computerized data bank, it became possible for Excerpta Medica to offer retrospective searching and S.D.I. services and to compile specific bibliographies on demand. An increasing number of institutions are now subscribing to such services and receiving, on a weekly basis, either printed S.D.I.'s and searches or updating tapes for their own computer facilities. These magnetic tapes may contain all of the new information entering the system or only selected portions of it, such as particular sections of interest (Drugdoc, for example, is essentially an S.D.I. service on section 37), classified citations with or without index terms and abstracts, cumulated author or subject indexes, or the input for the future issues of the abstract journals, two months in advance of publication. Excerpta Medica's thesaurus and classification system are also available in tape form (Malimet and Emclass).

Although able to provide custom searches on biomedical topics, Excerpta Medica does not envisage a role as a biomedical information center serving the individual phycisian or research scientist. Rather, it looks upon itself as a producer of biomedical information which is then distributed on a wholesale basis to information centers in other countries.

Hardware and software

The computerized system for the storage and retrieval of biomedical information which Excerpta Medica has developed and put into operation during the past 5 years has two principal (and to some extent contradictory goals :

1. Computer processing and publication of approximately 150,000 abstracts in 40 journals, arranged on the basis of a classification system with approximately 3,500 polyhierarchically linked categories, with computer processed author and subject indexes which are cumulated annually.

2. Computer storage and retrieval, with random access capability, of approximately 260,000 citations, 100,000 abstracts, and the relevant classification numbers, primary and secondary subject index terms, item index numbers, and language and country codes, both retrospectively and as S.D.I. profiles.

The total Excerpta Medica information input into the system is estimated to be in the region of 200,000,000 characters or "symbols" annually. To meet these primary objectives, National Cash Register computer systems were selected. Excerpta Medica's system comprises the following components :

Central processor	NCR 3I5-50I Rod Memory Computer
On-line memory	20 k NCR 3I6/504
Batch memory	20 k NCR 3I6/505
Magnetic tape unit	33kc
With controller	NCR 334/I3I
Magnetic tape unit	3 x NCR 344/I32
CRAM units	4 x CRAM 5, NCR 353/5
Switching computer	NCR 32I/3
Adapter cages	2

Since the input and output connections between the central processor and the external memory are realized in hardware, the actual memory capacity of the configuration in 40 k.

The NCR 315-50I Rod Memory Computer is capable of performing random, sequential, real-time, and remote inquiry processing. It also provides for the remote linking of teletype or other terminals for on-line processing and remote inquiry. The processor also has built-in floating point hardware and facilities for special real-time instructions; magnetic tape controllers provide complete read/write/ compute simultaneity. The system will handle most machine -or problem - oriented programming languages in use today. Up to eight magnetic tape units may be used on-line without a controller and up to sixteen with a controller. The paper-tape input unit reads 600 characters per second in any code on 5,7 or 8 channel tape. Finally, an almost unlimited number of remote inquiry and other on-line devices can provide input to the system via up to 100 terminals which communicate directly with the processor memory under the control of the switching computer.

The software components of the Excerpta Medica computer system include the following :

1. A system supervisor which controls the legitimacy of newly input classification numbers, indexing entries, language and country codes, and various elements of the citation. This system also checks on the presence or absence of certain types of information and the length of elements such as the journal abbreviation and the Coden code; its most important component, responsible for controlling the indexing input, is based on the thesaurus of biomedical indexing terms (MALIMET) and includes a computer program (MALICHECK) which controls the logical consistency of the synonyms and cross references in the thesaurus.

2. Various programs interlinking the hardware components of the configuration, input and output routines, and retrieval operations for either retrospective searching or S.D.I. services.

3. Programs for the on-line use of the data bank, permitting simultaneous processing of information and searching of previously stored information.

4. A publishing subsystem providing for the compilation of the citations and abstracts in the data bank, assignment of abstract and page numbers, make-up of the final pages, and compilation of the author and subject indexes for each monthly journal, resulting in a magnetic tape which can be used to drive the Digiset.

Malimet or Master List of Medical Terms

The most direct approach to the solution of the synonym problem is the compilation of a thesaurus of preferred medical terms which automatically excludes synonyms and undesirable word forms. To make automated storage and retrieval possible, Excerpta Medica has compiled such a thesaurus (MALIMET) which automatically translates synonymous index entries into a standardized list of preferred terms while rejecting misspellings and possibly misleading concepts. Beginning with a nucleus of some 25,000 preferred terms and 50,000 synonyms, all suggested indexing entries which the computer could not recognize were printed out on weekly error lists and submitted to a special committee for processing. In this way, the number of preferred terms has grown to about 200,000 and the thesaurus will probably reach a total volume of about 500,000 terms; the only type of preferred term still being added in significant numbers, however, are new drug names.

As stored on CRAM cards, MALIMET consists essentially of two files, an input file and an output file. The former is a combined alphabetical listing of preferred terms and synonyms, each preferred term being followed by both the pertinent synonyms and the preferred term number (used to store the information in the computer memory), while the synonyms refer only to the number of the corresponding preferred term. Any

recognizable term which is offered to the computer, whether during indexing or searching, is therefore translated into the appropriate preferred term number by this file. The output file, on the other hand, is a numerical file which translates the preferred term numbers into preferred terms in alphabetical form. Since the primary purpose of MALIMET was to control the input for the monthly subject indexes of the Excerpta Medica sections, rather than to provide a theoretical break-down of the biological and medical sciences, the amount of hierarchical structure in this thesaurus is small. There are, however a certain number of cross references between related terms and from broader terms to narrower terms (e.g., from "tranquilizer" to the specific tranquilizers), a degree of hierarchical structure which is still in process of amplification.

Classification and indexing

To provide readier access to the information in the data bank, Excerpta Medica has developed a retrieval system which works on three different levels : the subject index, the classification system, and the item index. Whereas the classification system and item index are a priori, fixed or semi-fixed systems into which the articles must be fitted, the subject index,which provides the most specific retrieval capability, is a free, a posteriori system which operates by means of two sublevels: the primary terms and the secondary terms. All indexing at Excerpta Medica is done by medical specialists, the goal being to provide access on either a broad or a highly specific basis according to the needs of the user.

The editors of each section of Excerpta Medica have developed a detailed classification system with a possible depth of up to four decimals so that the various subdivisions of all sections total about 3,500 "pigeonholes" into one or more of which any article can be placed. These various classifications are pragmatic in nature, being designed to divide up the literature into a large number of more or less equal piles rather than to provide a logical breakdown of the field. The system is open-ended

so that new subclassifications can be created at any time, and is poly-hierarchic in that the classification of each section is independent of the rest. A maximum of ten different classification numbers can be assigned to any article within each section; of these, the first determines where the abstract will appear in the monthly booklet, but all are equally valuable for retrieval purposes.

The item index is a list of terms representing preselected concepts of a general nature which are not appropriate for use as primary indexing terms since they would not normally be used to look up an article in an index, but which add relevant information which may increase the specificity of retrieval. These are similar to the secondary terms of the subject index, which are not thesaurus controlled and are therefore not too suitable for computer searching. The item index is used only for computer storage and retrieval and does not appear in the monthly booklets.

The goal of subject indexing at Excerpta Medica is to index as specifically as possible, much more specifically than would be possible with a limited number of preselected terms, and to make maximal use of the computer while keeping the intellectual work in the hands of the medical specialist. The special feature of the Excerpta Medica system which distinguishes it from most of the other computer-produced indexes is that two different levels are assigned to the various subject headings used to index a document. First, an unlimited number of primary indexing terms can be assigned, denoting the principal concepts that will lead to the most effective retrieval, either manually or by computer. These primary terms are checked against the computerized thesaurus or MALIMET so that the indexer can use any term that comes to mind and this will be automatically translated into the standardized preferred term before publication. In addition, the indexer can assign a number of secondary terms describing the nature of the document or particular investigation in more detail. These terms are not checked against MALIMET and are therefore not too useful for the computer retrieval, but taken in conjunction with the primary terms they represent a kind of mini-abstract, often containing quantitative information, which gives an accurate idea of the content of the article.

When the subject index is printed in the monthly abstract bulletins, only the primary terms assigned to a particular document are rotated and appear in their proper alphabetical position in the index, followed each time by the other primary terms and then by the secondary terms. Since the secondary terms are not rotated, this results in a less bulky and more functional index than is usually the case.

Input procedures

The input of new information for the Excerpta Medica data bank begins with the preparation of a complete citation containing the following elements (preceded by the corresponding field codes) :

(a) English-language title.
(b) Original title if in a printable orthography (and not in English).
(c) Authors' names (up to four).
(d) Authors' institutional affiliation or address.
(e) Abbreviated journal title.
(f) Year of publication.
(g) Volume, issue, and page numbers.
(h) Coden code of the journal (expanded to indicate the country of publication and the type of journal).
(k) A 4-letter code for the language of publication.
(m) A 3-letter code for the country of residence of the authors.
(p) The section numbers to which the article has been assigned.

On a weekly basis the computer prints out a multipart index-abstract form for each new citation received during the week. Each page of this form, consisting of a single abstract form and one index form for each section to which the article has been assigned, contains the production number and the complete citation of the article. The journals are then torn apart and each set of forms is matched with the corresponding journal article, after which the articles are routed to the editors of the interested Excerpta Medica Sections.

Each article, with its corresponding index-abstract forms, is first routed to the managing editor of the first section to which it has been assigned. He must do two things : (1) decide whether or not he wishes to publish an abstract of the article in his section (he may also decide to store merely an indexed citation in the data bank), and (2) classify the article into one or more of the subcategories of his section. The article is then passed on to the index editor of the same section (often a different person), who assigns the primary and secondary subject index entries and the item-index numbers; this work is done on the basis of the entire article but from the point of view of the subject specialist. As soon as the article has been classified and indexed by a particular section, this form is torn off and sent to keypunching for computer input, thus increasing the retrieval potential for that article while it is still being processed by other section editors. When the article has been classified and indexed by all interested sections, so that all the indexing forms have been torn off and sent to keypunching, the article with the remaining abstract form is returned to the first section editor who indicated that he wanted to publish an abstract. At this point, however, a fully indexed and classified citation is already available on magnetic tape or as output in response to a search question.

The managing editor of the primary section to which a particular article has been assigned may arrange for the preparation of the abstract in one of several ways : (1) he may prepare the abstract himself, on the basis of the summary or by encircling portions of the original article; (2) he may send portions of the article for translation into English and then prepare an abstract; or (3) he may send the article to one of Excerpta Medica's 4,000 volunteer abstractors, medical specialists who are located in almost every country of the world. In many cases the final abstract will still have to be translated and/or edited by a linguistic supervisor. Eventually the entire abstract is also keypunched and fed into the data bank, from which it can be retrieved either in response to a search request or for publication in an abstract bulletin. Although the classification and indexing are done individually

for each section, the same abstract which has been prepared for the primary section is used, with a few exceptions, for the other interested sections. As soon as sufficient abstracts have been accumulated in a particular section to meet the monthly quota,the computer automatically composes the pages of the abstract bulletin, assigns the abstract numbers and page numbers, compiles the author and subject indexes, and produces a magnetic tape which can be used to drive the Digiset photoelectronic typesetter.

Retrieval

Search profiles for either retrospective retrieval or S.D.I. services can theoretically be written in terms of any of the elements of the citation, plus of course the primary index terms and item index numbers. Most commonly, however, profiles will consist of a combination of classification numbers and index entries, with an author's name in some cases. The item index is very useful for increasing the specificity of a search on the basis of certain secondary concepts, such as the type of article or study or the experimental animal used. Questions can be put in terms of the usual parameters of Boolean logic, using "and", "or", as well as "not" connectors. In most cases, due to the high specificity of Excerpta Medica indexing, several "or" terms and very few "and" terms will be used; "not" terms are dangerous to use in view of the automatic loss of interdisciplinary or review articles dealing with several subjects simultaneously.

Under normal circumstances the classification system (often of more than one section in combination) is used for the more general questions while the subject index is used for the most specific retrieval. The high specificity of the subject index means that a general question is sometimes more difficult to formulate than a specific one (unless it coincides with a classification subcategory); however, a combination of one or more classification numbers with one or more index terms can be very powerful.

3.10 INSPEC : PROGRESS REPORT 1971-72

by H.D. BARLOW
Director, INSPEC

In the review of the work of INSPEC over the past year, since the Orleans meeting, I propose to concentrate on the development of our new classification and indexing system since this is an interesting illustration of the many interests which must be taken into account and the complex inter-relationships which develop in what might seem at first sight a comparativel simple matter of revising a classification and indexing system.

However, before doing so, a brief account of some of INSPEC's other activities will be in order.

During 1971 the total number of abstracts processed (149,000) was divided over the areas covered by INSPEC as follows :

Physics	84,332
Electrotechnology	39,968
Computers and Control	24,664

The range of services previously reported, viz. abstracts journals, current-awareness publications, individual SDI standard-profile and magnetic tapes continued to be provided with various enhancements.

The special effort to improve the currency of all services, which was reported last year when it had already produced significant results, was continued in the year under review and was supplemented by an intensification of our quality control and improvement programme. This programme has been in operation for some years

but only over the last year has it been given a more formal status, with the establishment of a separate section, independent of the processing and production department, which monitors the outputs of all the INSPEC publications and services (and selectively, those of other abstracting and indexing organisations for comparison purposes). The results of the Quality Control Departments investigations are summarised for management and reported in detail to the production department so they may take remedial action where necessary. To date the programme has been very effective, much of its success being due to the ready acceptance of the idea of quality control by the information scientists and other production staff, who realise that the quality control reports highlight excellence or improvement in addition to spot-lighting errors or deficiencies.

The standard-profile service, TOPICS, has been extended to cover a total of 48 profiles. The number of profiles will be further increased shortly.

On SDI, the research work which led to the current INSPEC SDI service was reported during the year. This was a large-scale investigation, conducted over some three years, in which some 600 scientists and engineers working in the field of electronics research were provided with a weekly SDI service and the various aspects of performance, value and acceptability were studied. The results are given in a five-volume report, INSPEC Report No. R71/6, "SDI Investigation, 1967-69".

Mention was made in the previous report of the removal to a new location at Hitchin of all INSPEC's editorial and production staff. With the transfer of the IEE computer installation to the same location, the opportunity was taken to move the remaining INSPEC departments, including systems and information research so that all of the INSPEC research, development and production operations are now housed in one building at Hitchin.

The various research and development activities, both OSTI-supported and INSPEC-funded, mentioned previously have continued, including user studies on subject indexes, but much of the effort available has been concentrated on the vocabulary development programme for the new classification and indexing system.

The programme is designed to produce a new unified classification covering the whole INSPEC database, with sectional classifications mapped from this for use in the three abstracts journals, and a vocabulary development file from which both a controlled and a free-language thesaurus may be generated.

The setting up of the vocabulary development file and the provision of the required soft-ware has been completed ; the use of the file for developing thesauri for the control of the printed subject-index headings and the organisation of the free-index forms is proceeding. Facilities are now available for the automatic generation of reciprocals of the various relationships input and for the production of various listings including trees or hierarchical chains and arrangements under the unified or sectional classifications.

In last years report it was stated that the new classification and indexing scheme would be introduced in January 1972. At the time this was a firm intention and plans were made accordingly. However by September 1971 it had become clear that if the change were made on the date planned there would not be sufficient time for the comments which were being received from many interested organisations to be properly considered or for their suggestions to be further discussed with them. It was equally obvious that a change in January 1972 would preclude any further radical change for at least three years.

Among the interested organisations there were three whose views were of special significance at that time ; the European Physical Society, the Institute of Physics, who were considering using the Physics Abstracts classification, and the American Institute of Physics with whom talks had been carried on at intervals over some years on the possibility of developing a common classification.

It was decided that the advantages of reaching an agreement with these organisations was sufficiently valuable to warrant the post-ponement for twelve months of the introduction of the classification. When the decision was taken - with reluctance since the preparatory work was almost complete and had required special efforts from the staff concerned - it was hoped that the comments received might lead to useful additions to or, modifications of the classification. In fact these hopes were greatly exceeded since, as the event, a most useful series of meetings with the Institute of Physics and European Physical Society representatives has produced a new version of the classification, much superior to the version it had been planned to introduce in January 1972.

In turn this new version of the classification has formed the basis of the classification which has been agreed by INSPEC and AIP as a common input classification which will be used in the exchange of material between the two organisations and from which different classification displays can be derived by each organisation as required.

It is a great pleasure to have been able to report how the discussions with these organisations and the internal discussions they triggered off produced a greatly superior classification. This is being made available to the other members of the Working Group in Physics for consideration as the basis of an internationally-accepted classification for Physics.

3.11 THE U.S. NATIONAL LIBRARY OF MEDICINE REPORT

by M.E. CORNING
Special Assistant to the Director
International Programs

The U.S. National Library of Medicine (NLM) has a mandate from the U.S. Congress to serve as a national resource to acquire, disseminate and exchange information important to the progress of medicine and public health. Accordingly, the Library's activities to improve biomedical communications have the objective of enhanced medical research, education and practice. The programs of the Library include : a computerized bibliographic information storage and retrieval system, MEDLARS, based on 2300 biomedical journals of the world ; an on-line time-shared system, MEDLINE, with a data base drawn from 1100 biomedical periodicals of the world ; a National Medical Audiovisual Center ; a Specialized Information Services program, with primary emphasis on toxicology information ; a Lister Hill National Center for Biomedical Communications, which is concerned with the application of technology to improve the biomedical communications process ; and financial assistance to U.S. medical libraries to improve the training of personnel, the collection, and the provision of library services. During the past year, the NLM has continued to work very closely with the professional health and scientific community whom it serves. In this manner needs are identified ; and new services and products are developed which respond to these needs.

The NLM has decentralized some of its services to ten regional medical libraries throughout the United States. During this past year, a biomedical communications network has been established in the United States with these regional libraries and other selected medical institutions forming the constituent elements of this network. The first services made available through this network have been document delivery and more recently, the on-line time-shared MEDLINE. In this manner, physicians or medical information scientists may use a terminal connected

via a telephone network to the NLM computer and engage in direct conversation to obtain rapid bibliographic information.

In the development of specialized information services, the Library now has a toxicology information program, one element of which is the on-line time-shared system, TOXICON. Cooperation has been initiated with both Biological Sciences Information Services (BIOSIS) and Chemical Abstracts Service (CAS). NLM/BIOSIS cooperation produces the publication "Health Effects of Environmental Pollutants". The CBAC (chemical biological activities) tapes of the CAS have now been incorporated into the TOXICON file for providing specialized services.

The NLM National Medical Audiovisual Center (NMAC) functions as a national resource for acquiring and disseminating non-print media to the health professional. It is actively engaged in stimulating the development of new multi-media resources in medical education and evaluating their effectiveness.

The Lister Hill National Center for Biomedical Communications, the research and development arm of the NLM, has been exploring the application of new communications technology, such as cable TV and satellites. An experimental project is now successfully under way using the NASA satellite ATS-1 to provide the transmission of medical information between physicians in a hospital setting and health aides in rural villages when no other communication media function.

Internationally, the Library now has eight quid-pro-quo bilateral arrangements with the United Kingdom, Sweden, Germany, France, Australia, Canada, Japan, and the World Health Organization. These represent true cooperation because there is no transfer of funds but there is sharing of time, talent and resources. The NLM provides MEDLARS tapes, documentation and training for personnel. The participating country must meet technical criteria, provide support for personnel, develop an information service nationally, and provide intellectual indexing input to the MEDLARS data base.

Thus, the NLM's principal emphasis, both nationally and internationally, continues to be an improvement in biomedical communications through the sharing of resources to advance medical research, education, and practice.

3.I2 ZENTRALBLATT FUR MATHEMATIK
REPORT OF ACTIVITIES

by U. GUNTZER
Editor-in-Chief

"Zentralblatt für Mathematik und ihre Grenzgebiete" is devoted to the recording, abstracting and indexing of all literature in the field of pure and applied mathematics (including e.g. theoretical mechanics, computer science, operations research, econometrics, control etc.). Since the last report (c.f. Proceedings of the Full Board Meeting, July 1971, Orléans, p. 71) more than twenty volumes recording more than 30.000 items have been published. The mechanization of the author indexes of Zentralblatt has been implemented successfully. Work is in progress towards the production of computerized subject indexes based on the classification scheme of the American Mathematical Society. Another major joint venture with the American Mathematical Society now in the planning stage shall be the production of joint cumulative author indexes to both their and our reviewing journals.

3.I3 SYNTHESIS OF MEMBRE SERVICES ACTIVITIES

by N.DUSOULIER
Editor-in-Chef, Bulletin Signalétique
du C.N.R.S.

In order to survey and compare Member Services activities, new developments and trends, a questionnaire was prépared by N. DUSOULIER and circulated to all Member Services prior to the meeting.

This questionnaire was specially oriented on the problems of systems' interconnexion in a national and international context and in particular on the following points :

1. Questions on rules and standards
2. Problems of overlap
3. Problems of national and regional information networks
4. Problems concerned with services offered and relations with the users
5. Problems of changes in documentary techniques.

The answers were analyzed by N. DUSOULIER, her report was circulated to all Member Services and discussed in details during the session.

S E S S I O N IV :

REPORTS FROM INTERNATIONAL ORGANIZATIONS AND SELECTED OBSERVERS

Chairman : F.A.STAFLEU

4.1 THE UNISIST PROGRAMME

by W.LOHNER, UNESCO Department of Documentation and Scientific Information

The main purpose of this report is to inform you on the Unesco current plans for 1973-74 and for the long-range programme 1973-78 as far as the implementation of the UNISIST programme is concerned.

The proposed programme, which I am presenting today, will be submitted for approval to the next General Conference of Unesco. So it is possible that some changes or modifications will be introduced during this conference.

The activities described in the Unesco Programme for the next biennium and for the 6 coming years have been planned on the basis of the results of the Intergovernmental Conference for the Establishment of a World Science Information System (UNISIST) held in October last year, as reflected in the final report and the resolution of this Conference.

The second source for the preparation of the programme has been the UNISIST Study Report and the comments and suggestions received from Member States, IGOS and NGOs.

The established programme will be carried out in close cooperation with Member States, special agencies of the United Nations, competent non governmental and governmental organizations, information systems and services, whose activities in scientific and technical information it will attempt to catalyze and coordinate. The programme foresees that UNISIST will be a focal point for coordinating the world activities of scientific and technical information and the successful implementation of this programme will depend to a great extent on the active participation of Unesco Member States, on whom the application of UNISIST principles and guidelines will rest.

In accordance with the UNISIST Conference recommendations, the highest priorities of the programme will be given to the activities related to the improvement of tools for systems interconnections and those related to information needs of developing countries in general, and to their training and educational aspects in particular.

The Division of Scientific Documentation and Information of Unesco will coordinate all activities in the fields of scientific and technical information and will act as UNISIST Executive Office.

The Unesco-UNISIST programme, both short and long range, comprises five main objectives.

A. Improving tools of systems interconnection

Within this group of programme objectives, assistance will be provided in the production of a world inventory, in machine readable form of the more significant information services. This work will be carried out in collaboration with Member States and appropriate organizations.

Based on this inventory a study will be prepared on the establishment of a world network of inter-connected referral services to carry out connecting surveys of information resources, to evaluate regional and/or sectoral services with a view to detecting possible improvements in the diffusion of labour and resources for the efficiency of information transfer and to provide referral services to individual and corporate users. This study shall also contain guidelines for setting up a referral network on a national level.

To avoid duplication of work and to co-ordinate the different efforts, support will be given for the development, diffusion, acceptance and continuing adjustment of standard codes and formats for the representation of bibliographic elements, in manual and machine systems, and of unified transliteration rules, character sets, machine standards for systems interconnection and other related matters. This programme will be carried out in co-operation with appropriate organizations, taking into account the results already achieved. In this connection, a manual shall be prepared on the methodology of scientific information systems interconnection.

Since full compatibility between all information systems is a long-range goal and cannot be achieved in the near future, and since software for file conversion is expensive, support will be given also to the development and collection of conversion programme to establish interconnections between systems that are not directly compatible with respect to tape specifications, codes,record structures, etc..

Preparatory work will be initiated for establishing an international clearinghouse in order to provide information and advice on machines, machine languages, codes, conversion programmes and related machine interface matters.

The Reference Manual for the preparation of machine-readable bibliographic descriptions, drafted by the UNISIST-ICSU AB Working Group on Bibliographic Descriptions will be finalized, and translated into French, Russian, Spanish, and diffused.

To meet the need for an internationally acceptable coding system for periodical titles supported by an effective machinery for collecting, recording and disseminating accurate information on the serial literature in science and technology, assistance will be given to the International Centre of ISDS (International Serials Data System), Paris, to contribute to its initial operating phase as an International System in close co-operation with the French Government and other Member States as well as appropriate international organizations. It is intended to publish a list of periodicals and current supplements to this list.

Support will also be given to sponsor studies in the framework of the International Centre to maximize the use of its data base, in particular for the developing countries :

(1) requirements and methods for the establishing of national/regional centres in developing countries ; (2) a fast communication network between the International Centre and the national/regional centres ; (3) a co-ordination plan of the International Centre with international organizations, in particular, with abstracting and indexing services ; and (4) the output requirements of the International Centre with special attention to developing countries.

In view of harmonizing the efforts in the field of terminology, in particular in the area of natural language control, and in view of the necessity of increasing the availability of monolingual as well as multilingual dictionaries with the help of advanced lexicographic and processing methods, support will be given to the maintenance of the two clearinghouses for thesauri, descriptor lists and classification schemes, as well as to the International Information Centre for Terminology in Vienna.

Work will be initiated for the establishment of a broad classification scheme in science and technology in close cooperation with appropriate organizations by convening experts' meetings. Based on the results obtained a draft of such a classification scheme will be drawn up.

Further support will be given to the development of the methodology for the establishment of mono- and multilingual thesauri as well as to improve automatic assignment indexing techniques and automatic classification and categorization as well as other lexicographical tools.

Work will be initiated in co-operation with appropriate organizations on the application, economical and financial aspects of telecommunications and teleprocessing networks for the transfer of scientific and technological information with special attention to the needs of the developing countries.

B - Improving information transfer is our second programme objective. Within this group efforts will be concentrated on defining and developing the most effective ways for transfer of scientific information.

A long-range study will be sponsored to measure the effectiveness of the institutional components of the information transfer chain (i.e. general purpose libraries, specialized libraries, documentation centres, abstracting and indexing services, information analysis centers and data evaluation centres) in information transfer. Based on the results obtained, corrective actions will be proposed and carried out.

The programme will also concentrate on the co-ordination aspects needed to establish an integrated mechanized world-wide system for abstracting and indexing services in various disciplines of science and technology. Particular support will be given to co-operative schemes resulting in an international sharing of the work and products of such services. The initial phase will consist in developing,

with the help of appropriate organizations, input compatibility between these services. At the latest stage, a sharing agreement between abstracting and indexing services, within the world input plan, will be drawn up as a prerequisite for effective overall coordination.

As suggested by the UNISIST Study Report, a survey of existing translating services on a national and multi-national as well as multi-disciplinary basis will be completed and analysed to detect gaps and overlaps. This investigation will be also followed in the long-range programme by corrective actions.

Co-operative schemes will be promoted to achieve a concerted distribution of responsibilities for translation, to optimize the overall utilization of available resources and to facilitate access to the multilingual scientific and technical literature, in particular for developing countries.

In the field of numerical data and information analysis centres, a wide programme is foreseen. To promote the collection, critical evaluation, organization and dissemination of numerical data, assistance will be given to appropriate organizations such as CODATA. In particular, (a) general procedure of data handling and evaluation will be developed, and (b) the special needs of the engineering professions for data compendia will be investigated.

A worldwide, multi-disciplinary inventory of existing information analysis centres will be sponsored to provide a data base of ongoing activities in this area for the detection of gaps and overlaps.

Based on the inventory and detection of existing gaps, the development of specialized information centres service for the needs of specific user groups will be encouraged and co-ordinated in subsequent biennia.

C - Developing specialized information manpower

High priority will be given to projects related to education and training of information specialists and users specially for developing countries.

The main activity will be concentrated on : creation of a UNISIST Training Centre for information specialists, establishment of UNISIST international fellowships pool for documentalists ; guidelines for university-level programmes ; preparation of international basic handbook in information sciences ; organization of specialized information courses.

Assistance will be given for the establishment of International Training Centers for UNISIST purposes to train, in particular, information specialists from developing countries.

University courses and training workshops, in information sciences and techniques for educating professionals and users will be developed. To improve scientific publication, financial support will be given for the creation of associations of editors of periodicals in science and technology ; for involving professional societies in information transfer ; for developing style manuals ; and for devising methods of improving the relations between primary and secondary publications.

To keep the authors, editors and publishers abreast of modern developments in information science, studies will be undertaken aiming at establishing suitable methods and systems for their continuing education.

Support will also be given to improve quality control of published information and to promote collaboration among editors and publishers of journals in science and technology.

Ongoing national and international assistance programmes in training and education in the field of scientific and technical information and documentation with the UN agencies, competent professional organizations, scientific unions and others, will be coordinated, and specialized regional training courses in information science and techniques will be organized.

In close co-operation with the Education Sector of UNESCO, guidelines for university level programmes as well as curriculum material and handbooks for the education and information specialists as well as users of scientific and technical information will be developed.

To identify possible future trends in the development of scientific and technical information, on-going research in information science will be evaluated.

D - Developing Scientific information policy and national networks

The activity within this section will be concentrated mainly on three groups of projects :

a) to develop scientific information policies as guidelines for Member States ;

b) to help Member States in the creation of national systems, networks and co-ordinating agencies at national level ;

c) to reduce administrative barriers in information transfer at the international level.

In close cooperation with Member States, OECD, CMEA and other intergovernmental organizations, guidelines for international scientific information policies will be prepared and world-wide diffused for application.

Assistance will also be given for the creation at the national level of governmental chartered agencies responsible for guiding and stimulating the development of information resources and services. Several projects, at the request of national governments, will be set up.

Long range systematic surveys and studies on information structures resources and needs of Members States will be initiated. Based on the results of these studies, a programme will be established and country assistance will be given to the creation of national agencies responsible for guiding and stimulating the development of information resources and services (within the UNDP funds).

An international programme will be established in close cooperation with Member States having in view the creation of a chain of national information centers internationally oriented.

On the other hand, in close cooperation with appropriate international organizations, initial studies on existing restrictions in scientific information circulation and on pricing policies will be undertaken, having in view the free transfer and availability of information on a non-profit basis. A set of recommendations will be proposed to reduce unnecessary administrative restrictions in information transfer.

Several regional meetings will be organized with the aim of improving national scientific information policies and of developing regional cooperation in this field.

E - Assistance to developing countries

In our future programme, assistance will be provided to developing countries at the request of Governments to :

a) review national requirements in scientific and technical information, with particular attention to the needs of users ;

b) plan and advise on the establishment of documentation and information centers and services in science and technology ;

c) plan and advise on the improvement of existing information services ;

d) help in the establishment of national or regional information networks ;

e) advise on national scientific information policy ;

f) review training and educational needs for specialized manpower, and

g) advise and help in preparing Government submission of requests to UNDP.

To better prepare the realization of this programme, national and regional surveys of information needs will be developed (in close cooperation with science policy programmes). In general the emphasis will be on the transfer of technical information for concrete user, rather than on the immediate acquisition of all kinds of documents and data, as a matter of principle. Work will be carried out on the development of the methodology of measurement of the level of scientific and technical information. These methods will be tested and subsequently will serve as a basis for UNESCO contribution to UNDP programming.

A programme will be worked out in close cooperation with the industrialized countries willing to meet the needs of and assist developing countries.

In order to develop empirical data on the most effective way of linking developing countries with the world information resources, a number of carefully planned pilot projects will be designed and carried out, preferably on a regional level.

UNISIST will act as a forum where assistance programmes to developing countries in documentation and information, irrespective of their institutional support, will be reported and discussed with a view to achieving overall co-ordination. A mechanism for such co-ordination will be developed.

The specific problems of developing countries in scientific and technical information as well as the assistance provided to them by developed countries, other than UN agencies and nongovernmental organizations will be subjected to a thorough review and study, to develop a long-range co-ordinated strategy to meet the scientific and technical information needs of these countries.

Organization and management of UNISIT

To carry out the programme outlined above, the following managerial bodies will be established, as recommended by the Intergovernmental Conference :

a) Steering Committee ;
b) Intergovernmental Conference ;
c) Advisory Committee ;
d) Executive Office.

The following plan is proposed for conferences in categories II and V during the period I973-78 :

I973-74 :	Steering Committee (V)	Advisory Committee (V)
I975-76 :	Steering Committee (V)	Advisory Committee (V) (2 meetings)
I977-78 :	Steering Committee (V)	Advisory Committee (V)
	Intergovernmental Conference (II)	

4.2 INTERNATIONAL STANDARD SERIAL SYSTEM (ISDS)

by M. ROSENBAUM
Director ISDS - International Centre

The ISDS-International Centre was established in April 1971. The first task of the Centre was to outline a preliminary system design, based on the report "Feasibility of an International Serials Data System", prepared by M.D. Martin and C.I. Barnes, and on various contacts with National and International Organisations.

The outcome of the study was a report providing for a two-tiered system including :

- International Centre responsible for the establishment and maintenance of an International register of serial publications.
- National and Regional Centres responsible for the registration of serials published in their respective territories.

The report was submitted to the ad hoc working group on ISDS, and approved at its last meeting in September 1971.

The present task of the International Centre is three-fold :

- Establishment and organisation of the I C as such
- Establishment of a network of National and Regional Centres
- Coordination between ISDS and other International Organisations.

1. The International Centre

1.1 Administration

The statutes of the International Centre were discussed at the last meeting of the ad hoc working group on ISDS, and drawn up by Unesco and the French Government.

They provide for :

- a Governing body consisting of representatives of Unesco member states, and representatives of International Organisations (ISO, ICSU, ICSU AB, IFLA, FID, etc...)
- an Advisory Committee consisting of experts chosen by the director of the International Centre.

The legal document has been approved by the French Government, and is now submitted to Unesco for signature.

The Governing Body will be convened as soon as the document is signed. The Advisory Committee has held its first meeting in February 1972.

1.2 System design

The International Centre has undertaken a complete system design bearing on the following points :

a) Organisation of ISDS

- establishment of the ISDS network
- communication between Centres
- communication with abstracting and indexing services
- communication with users

b) International Register

- structure and contents
- communication format
- establishment and maintenance
- publications
- other products

The system design was submitted to the Advisory Committee in February 1972. After discussion by the committee it was decided that :

- The basic ISDS retrospective file should be limited to scientific and technical serials.
- The complete file should be a cumulation of the basic file with national and regional files.

The International Centre has placed a contract for the establishment and maintenance of the International file. It has asked the ICSU AB Secretariat to provide ISDS with the data bases of the Abstracting and Indexing Services.

Several data bases have been received. The I C is negotiating the acquisition of several others.

The basic International file should be completed approximately 18 months after the reception of the initial data bases.

The working paper submitted to the Advisory Committee is now being amended and completed. It will be published in October as a Unisist document, under the title "Guidelines for ISDS".

2. ISDS network

The system design of ISDS provides for National and Regional Centres working in close cooperation with the International Centre.

Several countries have already given consideration to the matter. The United States has announced the establishment of a National Centre within the framework of the National Serials Data Program.

The USSR has indicated its intention of entering ISDS in the very near future.

Great Britain and France have started work on the project, in cooperation with their National bibliographies.

Other contacts have been established with Canada, the Federal Republic of Germany, the Scandinavian countries, Australia, Latin American countries, etc.

Upon establishment, each National or Regional Centre will receive a block of ISSN from the I C for the numbering of their serials published after January 1971.

3. Coordination with International Organisations

Although the work of organisations such as ICSU AB, IFLA and ISO may be widely different in scope, there is a certain amount of overlap in the area of bibliographic description. It seemed important to achieve coordination in this area in order to avoid duplication of effort and conflicting rules.

An informal working group consisting of members of these organisations met in November 1971 in Berlin, and April 1972 in Vienna.

The outcome of these meetings was :

- a draft ISO standard for ISDS, defining the format and use of ISSN, and the set of data elements needed for the identification of serial publications. This draft standard will be discussed at the ISO plenary meeting in September.
- elimination of basic differences between the ISDS data elements and those prepared by the IFLA working group on ISBDS.

Several other informal discussions with the members of the IFLA working group have led towards a common definition of key titles. The joint working group will be convened whenever necessary.

Appendix

List of data elements for ISDS format

The ISDS minimum list of data elements is a subset of Marc serials format.

The format will be used in its original form, without changing either the tags or the definitions. In cases where a field needed for ISDS is not supplied in the format, the I C will negotiate its inclusion with the Marc office.

- Date of entry or most recent amendment
- Centre code
- ISSN
- Coden
- Publication status
- Type of publication
- Start date
- End date
- Country of publication
- Alphabet of original title
- UDC
- DDC
- Key-title
- Added title words
- Abbreviated title
- Variant title
- Former title
- Successor title
- Other language edition of
- Has other language edition
- Inset in or supplement to
- Has inset or supplement
- Related title
- Imprint
- Coverage by abstracting services

4.3 INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS (IFLA)

by A.J.EVANS
IFLA Representative
Librarian of Loughborough University
of Technology

The future work of IFLA has been considerably strengthened by the award during this past year of two substantial grants from the Council on Library Resources.

The first of these is for $100,000 over the next three years and will enable IFLA to assume a much greater international role through strengthening its administrative and staff operations while it restructures its dues schedule. The particular areas of activity to benefit either directly or inderectly from this grant are International Book Year, Universal Bibliographic Control and the on-going programs for the exchange of publications, planning of library buildings, library research and the automation of library procedures.

The second grant of $54,000 was for the establishment and support of a permanent secretariat for the IFLA Committee on Cataloguing for a three-year period. The secretariat are initially located in quarters made available by the British Museum and will serve as the centre for international co-ordination and standardisation of cataloguing rules and practices. It is assisting in the establishment of an international system for the exchange of bibliographic information by providing needed liaison between sections and committees which deal with the same problems from differing points of view. At the end of 1971 the secretariat published the 'International Standard Bibliographic Description (for single volume and multi-volume monographic publications) and work is also in progress on the International Standard Bibliographic Description for Serials. Earlier this year the IFLA Committee on Cataloguing published the first of its quarterly bulletins under the title 'International Cataloguing'. The work of this Committee is clearly of particular interest to ICSU AB and direct contact has been established not only with the Secretariat but also by representation on the ICSU AB Working Group on Bibliographic Descriptions.

Our participation in the UNISIST Intergovernmental Conference in Paris in October 1971 proved extremely valuable and joint statements on behalf of FID and IFLA were made. Later involvement in the ICSU meeting of NGO's further identified those areas of activity within UNISIST where IFLA can make vital contributions. Such co-operation with other NGO's has been a dominant feature of IFLA's activity over the past year, and in particular the relationship with FID. The new FID/IFLA Liaison consists of the President, Secretary and one other person from each organisation and met for the first time in the Hague in February this year. The particular areas of co-operation discussed were UNISIST, Terminology, Statistics and Standards, and Education and Training. There will also be some rationalisation of publication in Latin America and Asia and a more direct interchange of documents between the two organisations.

4.4 NOTE ON THE PROPOSED INTERNATIONAL INFORMATION SYSTEM FOR THE AGRICULTURAL SCIENCES AND TECHNOLOGY (AGRIS)

by Sir Thomas V. SCRIVENOR
Secretary, CAB

The coverage of AGRIS is FAO's subject field. FAO's role is to sponsor and co-ordinate a network of information services, and AGRIS is intended to minimize duplicate expenditure of money and effort and to maximize information in agricultural science and technology. It is planned at two levels : Level One to provide a comprehensive non-selective current awareness service giving titles only with shallow indexing ; Level Two to provide specialized selective information abstracts deeply indexed. Level Two is still in the pre-planning stage, but the Director-General is expected to appoint a Study Team soon. Level One is in the experimental stage. A specimen issue is planned for 1973 so that the FAO Conference in November 1973 may decide whether Level One should become operational from 1974.

The major problems are indexing and finance. Level One expects to publish 250,000 titles per annum. Initially the CAIN tapes of NAL will be the main source of material, and this is arranged in 70 broad categories. The Study Team for Level One recommended a minimum of 500 - 600 subject categories, and NAL cannot provide these. It is doubtful whether Level One would be of practical use without several hundred subject headings, particularly in developing countries.

Finance so far has been provided by IDRC and OSTI for expert staff. Support is also promised by the Federal German Republic. FAO can contribute only secretarial assistance and some funds for meetings, but it hopes that input, processing and distribution will be provided free by the participating organizations. This may be possible for the experimental stage but is hardly practicable for an operational Level One.

4.5 WORLD INVENTORY OF ABSTRACTING AND INDEXING SERVICES

JOINT FID/NFAIS PROJECT

by Stella KEENAN
Executive Director
National Federation of Abstracting
and Indexing Services

Background

The National Federation of Abstracting and Indexing Services (NFAIS) is a Federation of not-for-profit organizations and government agencies that are engaged in abstracting and indexing ; there is no individual membership. The Federation was incorporated in 1958 under the name of National Federation of Science Abstracting and Indexing Services (NFASIS) and currently has 31 member services. The Federation Internationale de Documentation (FID) is an international organization consisting of national members drawn from many countries of the world. Both Federations have published directories of abstracting and indexing services. This paper describes the program developed between the two Federations to merge the published information, develop a machine readable inventory and provide continuously updated services from the machine based file.

This Project is developed under Recommendation I of the UNISIST Report :

"The basic philosophy of UNISIST makes it mandatory to develop international programmes for sharing the work and products of information transfer at each stage of the process through the voluntary co-operation of all parties concerned. As a step in this direction, UNISIST adherents should be called upon to extend their efforts to survey information services of national, regional, or international scope, and to provide for their stepwise integration into a world referral network".

As abstracting and indexing services of the world constitute secondary information sources from which can be obtained important information as to publications in narrow or broad subject areas or in different languages, knowledge of these services by subject, language and country is essential for developing national and international information systems and this knowledge should be current.

Outline of FID/NFAIS Project

1. To merge and update the data already contained in the published directories.
2. To collect current data on indexing services in science, technology, the social sciences and the humanities.
3. To compile the data in machine readable form and develop machine programs that provide for printing the file ; periodic updating ; and demand searching.
4. To publish a revised directory of abstracting and indexing services to be undertaken jointly by the two Federations three years from the start of the project.
5. To design the file structure in an "open-ended" form so that additional information can be added to any segment or subset of the file.
6. To develop cost figures and promotional material on the special services that might be generated from the mechanized data base.
7. To establish agreed procedures to update and maintain the data base after the funded project is completed.

Initial funding for the design phase of the project was provided to NFAIS by the National Science Foundation, Office of Science Information Service, and the FID effort was funded by UNESCO. FID is continuing to work during 1972 under a UNESCO contract. NFAIS has applied for continuation funding from the National Science Foundation. If requested funds are made available, the completion date of the Joint Project is expected to be 1974.

Progress from July 1971 to date

a) Data Element Definition

The data elements to be included in the Inventory have been identified and defined. This resulted in an agreed list of 91 elements grouped into 11 main classes. As far as possible, existing codes were used to identify specific elements ; for example, the American Society for Testing and Materials Journal Coden is used for the identification of Journal titles (with provision for the later addition of the International Standard Serial Number) and the codes used by the Library of Congress MARC system to identify country of publication and language.

b) Computer Based Services

In developing the criteria for inclusion of services in the Inventory, it was agreed that services produced in formats other than printed (e.g. microfilm, computer tape, etc.), should be included. The previously published Guides had limited coverage to printed publications, and specified publications issued in other forms in the supplementary notes. In developing the plans for the Machine Inventory, it was agreed that all services with a uniquely identifiable title should receive a separate entry in the Inventory and be tied together by cross references. This means that Biological Abstracts and BioResearch Index would receive full entries under these titles in the Inventory, as well as Abstracts of Mycology (separately printed publication) and BA-Previews (mechanized tape service). If necessary, all these services will be entered under BioSciences Information Service of Biological Abstracts (BIOSIS) in an index of responsible organizations.

Data elements are currently being developed and defined for computer based services. The data elements used in the American Society for Information Science Special Interest Group on SDI Survey published by the American Institute of Physics, the directory prepared by the FID/TM Committee and published by the CSIR Library in South Africa and the directory published by OECD are being analyzed as part of this definition process. In addition, close liaison is being maintained with the American Society for Information Science /SIG SDI effort to update the directory cited above.

c) Q/IS Development

An agreed version of a combined "questionnaire/input sheet" (Q/IS) has been developed. This Q/IS is being used during 1972 to input all information collected for the data base, and will be used in 1973 to check and collect final data from publishers. The Q/IS has been designed so that tagging codes need by the keyboarder have been imprinted on the form.

Summary

If funding is provided to continue the project, the expected completion date is 1974. A strong cooperative relationship has been developed between the staffs of FID and NFAIS both at the working and management staff level. The Federation believes that they have overcome both the distance gap (3,000 plus miles) and the generation gap---FID has been established for over 75 years while NFAIS is only 15 years old.

4.6 ISO/TC 46 - REPORT ON THE ACTIVITIES OF ISO/TC 46 " DOCUMENTATION "

by J. EGGERT,
Secretary ISO/TC 46

Report presented by
N. DUSOULIER,
ISO Liaison Officer with the ICSU AB

The program of work of ISO/TC 46 has broadened substantially since the last report of ISO/TC 46 given on the occasion of the last plenary meeting of ICSU AB. The proposed new scope still requires the approval of the ISO Council and reads as follows :

> "Standardization in the field of documentation, libraries and related information handling, including information systems and interchange networks as applied to documentation.
>
> Liaison shall be maintained with ISO/TC 37, TC 42, TC 95, TC 97 and TC 130 and with relevant documentation sections or committees of international organizations and professional groups".

The growing amount of documents and the computerization which is therefore involved necessitated the transfer of priorities with regard to the relevant questions. Coding systems gained increasingly in importance. This factor appeared for the first time in 1967 on the agenda of the plenary meeting of TC 46 when an American working paper on the International Standard Book Numbering was presented. Working Group 1 of TC 46 took charge of this question and elaborated within two years the basic draft which will be published as International Standard ISO 2108 in due course. The ISBN printed on the reverse side of the title-page facilitates not only the ordering of books, but will also be used in lending libraries for borrowing books. The formulization of standardized guide-lines for the implementation of the ISBN will complete this work.

The registration of periodicals, a problem also tackled by the working group of bibliographic descriptions of the UNISIST/ICSU AB group, was included in the program of work of TC 46. This involves a system for the numbering of serials. The interests of both groups have been co-ordinated since then to serve the International Centre in Paris and the work has resulted in a draft standard proposed by a group of experts in the course of two informal meetings held in Berlin in November and in Vienna in April. This draft is going to be approved at the next plenary meeting of TC 46 in September/October in the Hague.

At the same time two other questions have been raised : one concerns the coding of country names, a partial revision of a formerly published ISO Recommendation (ISO/R 639) ; the other deals with a code for the products of the music industry (MIC). Documentation presented to the Secretariat of Working Group 2 of TC 46 - Representation and Coding of Country Names - since the Stockholm meeting in 1969 was reviewed, and the following principal problems were identified :

1. Country and/or other geographical entity names.
2. Alphabetic codes.
3. Numeric codes.

In order to develop these codes for names of entities a working list, identifying these entities, was prepared by AFNOR, taking principally into account the "United Nations Standard Country Code". At the co-ordinating meeting of representatives of international organizations, WG 2 and other interested TCs held in Geneva in September 1971, the need for a unique international code was unanimously stated. It was then decided to enlarge WG 2 by nominees of international organizations and delegates of other TCs.

During the last meeting of WG 2 in Berlin in April 1972 the principles for the establishment of an alpha and a numeric code were agreed upon. The codes will follow in due course and these will be discussed at the next plenary meeting of ISO/TC 46. It is intended to establish a code which could be used for a variety of purposes.

The Music Industry Code (MIC) based on an American proposal was recently presented during the course of a lecture tour and is going to be discussed by WG 1. This code will most probably give rise to a new question : the coding of sound recordings independently of the industrial product numbering.

Returning to the above-mentioned need for computerization, it should be noted that due to the widening scope of Working Group 4 - Automation in Documentation - it has been decided to transfer WG 4 into a Sub-Committee retaining the same number. Three additional Working Groups have been created : "Character Sets", "Filing Arrangements for Catalogues" and "Content Designators".

Attention should also be paid to the fact that the collaboration between ICSU AB, UNESCO and ISO/TC 46 has become closer. At the last plenary meeting TC 46 adopted the word abbreviation list for periodical titles prepared jointly by UNISIST/ICSU AB, which is being circulated as a Draft Standard and which is preceded by an introduction emphasizing its relationship to the revised ISO/R 4 "International Code for the Abbreviation of Titles of Periodicals". Place names and their abbreviations and groups of initials have been excluded from this list. If it is accepted in its entirety by all Member Bodies of ISO, it will then replace ISO/R 833 "Abbreviation of Generic Names in Titles of Periodicals".

A further example of the above-mentioned co-operation has become evident by the UNESCO publication of the ISO text on Guide-lines for the Establishment and Development of Monoligual Thesauri for Information Retrieval, based on the UNESCO-Guide-lines, a tentative American and a German Draft Proposal. The Draft International Standard ISO has been submitted to the Central Secretariat of ISO for voting by an accelerated procedure. In addition a Working Group 5 - Guide-lines for Thesauri - has been established to deal with the standardization of guide-lines for multilingual thesauri as with other related problems.

The third example showing the result of collaboration is the adoption of the full text of the Recommendations on Library Statistics approved by UNESCO in December 1970 which is in the course of publication as a Draft International Standard ISO.

Keeping in mind the increasing need for information, it seems also necessary to report on the activities of the Sub-Committees, Working Groups and ad hoc Working Groups of ISO/TC 46.

SC 1 - Documentary Reproduction - has recently established five working groups on : microfiche, microcopying of technical drawings, microfilming of newspapers, quality of microcopies and vocabulary for documentary reproduction. Concerning the vocabulary, it was decided that the draft proposal should consist of the following sections :

A - General Notations

B - Original, master, copy

C - Reproduction procedures.

The working group on microfiche submitted recently three documents on A6 microfiche for variable and uniform diversion to be processed as Draft International standards.

SC 2 - Conversion of Written Languages - intends to increase the number of active collaborators interested in this field. The finished document on Transliteration of the alphabets of non-slavic languages using Cyrillic characters has been submitted to the Central Secretariat for voting as a Draft International Standard being based on a fixed graphic relationship to ISO/R 9. It was therefore impossible to reflect the differing phonetic characteristics of the 58 languages involved. SC 2 stressed that the system was reversible for each of the individual languages in the current orthography.

During the last meeting of SC 2 the sub-committee took note of the increasing need for conversion systems suitable for automation. Recognizing that two irreconciliable demands for machine use, reversibility and omission of diacritical marks exist, the full TC 46 passed a resolution recommending that SC 2 consider the preparation of conversion systems without diacritical marks along with their other systems.

A document on general terms of information and documentation from the fields of linguistics, terminology, communication science and data processing prepared by WG 3 -Terminology- of TC 46 has been submitted for voting by the members of TC 46. Furthermore, five documents on additional items concerning the vocabulary of information and documentation, following the tentative schedule of work prepared by AFNOR, have been discussed and partially revised in the course of the last meeting of WG 3 within the frame of ISO/TC 46's plenary meeting.

In view of the forthcoming transformation of ISO Recommendations into International Standards ISO, TC 46, as requested by the Central Secretariat ISO, has to reconsider the existing valid recommendations, in order to decide whether they meet the requirements of the present state of information. This entails the updating of all recommendations referring to library science and documentation.

It goes without saying that this can only be done step by step. At the next plenary meeting it will be proposed to start with the revision of the rules concerning bibliographic references which should preferably consist of a frame standard containing a chart of the basic data elements and their definitions for manual and mechanized application, and a standard each for the several kinds of documents, setting out the corresponding rules.

In connection with the revision of ISO/R 8 "Layout of Periodicals", the Recommendations ISO/R 18 "Short contents List of periodicals or other documents", ISO/R 30 "Bibliographical strip", and ISO/R 215 "Presentation of contributions to periodicals" are going to be reviewed to be adapted to the present requirements.

Some information on items which are discussed in ad hoc Working Groups of TC 46 is certainly of interest here. The revision of ISO/R 214 "Abstracts and Synopses" based on an American Standard and referring frequently to an Italian proposal has been submitted to the members of TC 46 for voting as a draft proposal. Another question which seems to raise some difficulties is a Draft Proposal on "Patents and like documents - bibliographic references, essential and complementary elements", since the INID members have not yet reached an agreement. This proposal needs rediscussion at the next plenary meeting.

A further problem discussed at the last plenary meeting concerns the Alphabetical Arrangement for international use. The ad hoc Working Group established for this purpose reached agreement on the following points :

1. Each country should continue to use its own alphabetical order in lists such as : directories, catalogues, bibliographies, dictionaries, etc.
2. In order to render the use of the above-mentioned lists easier for everyone, each list should have a short explanation of the alphabetical order used.
3. For international lists, only the so-called fundamental letters should be taken into account for filing, disregarding diacritical signs.

Furthermore, it was agreed that a new document should be prepared, based on alphabetical arrangement of publications for international use, to be circulated to all members of TC 46.

The above represents only an excerpt from the complete program of work of ISO/TC 46, but it demonstrates clearly that close co-operation with international organizations and other interested groups results in due course in internationally agreed standards which are acceptable to all parties concerned. Such co-operation also avoids any kind of duplication or unnecessary repetition of work. ISO/TC 46, as the international body responsible for international standardization and being represented at all international conferences, expressed its willingness to ensure further co-ordination of work, especially with reference to priorities regarding the planned information network initiated by UNISIST.

4.7 ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD) THE SCIENTIFIC TECHNICAL INFORMATION POLICY GROUP : CURRENT PROGRAMME AND TRENDS

by P.J.JUDGE

Head, OCDE Scientific and Technical Information Section.

In order to appreciate the developments in the programme of the Information Policy Group ± (IPG), it is worth looking briefly at the changes in the work of the OECD in science and technology policy. The work of the Organisation as a whole had a significant new impetus last year, at the OECD Ministerial Council Meeting, at which it was agreed that for the 1970's the objective would not be economic growth for its own sake, but rather economic growth linked with considerations of social development and the quality of life. Within this framework, the Ministerial Meeting on Science, which followed a few months later, concentrated on the theme of "Science and Society", basing much of its discussion on a major report "Science, Growth and Society" (the Brooks Report) which appeared in August 1971. This report called for a much closer integration of science policy with economic and social policy as a whole, particularly as regards the long term human and social objectives of economic development.

Since the Ministerial Meeting on Science the OECD Science Policy Committee has been given a new mandate and has changed its name to the Committee for Scientific and Technological Policy. This change of name has been accompanied by a radical change in the direction of its programme ; the new emphases are on : the place of social sciences in science policy, innovation in the social and service sectors, technology assessment, innovation in industry and international co-operation in science and technology.

± For the background and mandate of the IPG, see the OECD Chapter in "Information Activities of Major International Organisations" (OECD, 1971), available from OECD on request.

The Information Policy Group, in the development of its programme, has taken heed of the Brooks Report and also of a report entitled "Information for a Changing Society . Some Policy Considerations", prepared by a group chaired by M. Pierre Piganiol, which apperead in September 1971. This report seeks to explore the nature, magnitude and implications of information needs in science, the economy and society, and puts forward conclusions and recommendations for information policies at national and international level. The programme of the Information Policy Group has been progressively re-orientated towards the new objectives set by these reports.

At the present time, May 1972, the activities of the Group are as follows :

National policies for information

The IPG brings together government officials in Member countries with responsibilities at policy level for national programme in scientific and technical information. All its meetings therefore provide a forum in which policy discussions among Member countries can take place. The separate activities and projects of the IPG are subordinated to this forum function, within the general theme of "information for a changing society". Work during the last 12 months directly related to policy and planning aspects has included discussions on questions of government financing of information activities, and the related problem of pricing policies for information services which, while offered nationally, may nonetheless be international in scope and operation. There has also been some continuing attention paid to costing and cost/effectiveness studies, and to the complex question of developing internationally comparable statistics of the resources devoted to scientific and technical information. On this latter point, a number of Member countries are running pilot surveys to test a statistical methodologies and results are expected on these surveys shortly.

Another approach to the study of national information policies has been to examine representative countries as case studies. The first of these, "The Review of National Scientific and Technical Information Policy : Canada", was published in November 1971 and describes the organisation and administratip, of scientific and technical information systems and services in Canada, identifying some of the policy issues facing the Canadian government in managing its information resources. A brief summary is given of the confrontation meeting

held in Paris during which senior Canadian officials replied to questions posed by an international team of examiners. Other reviews now in progress are those of Ireland,which is expected to be completed before the end of this year;Spain for which a confrontation meeting is planned in May of I973; and Germany,where the target date for completion is November I973. It is not intended to do such reviews of all Member Countries : the countries chosen are thought to be such as to offer a variety of problems and experience, and in which the review procedure can benefit not only themselves but other Member Countries, which participate in the confrontation discussion.

Education and Training of Information Specialists

A report on "Education and Training of Information Specialists for the I970's" has just been completed by Mr. Herbert Schur of the University of Sheffield.This report is based on a comparison of what is believed to be best current practice in training information specialists in the United States and a number of European countries. Mr. Schur has made some forecasts of the directions of development of the information professions during the next 10 years or so,and from these has put forward some guidelines for training information specialists of various kinds at various levels. His report is currently being discussed in Member Countries to see to what extent national policies in this field can be based on it.

Information and Communication in the Social Sciences

During the course of the last year a draft inventory of information sources and services in the social sciences was prepared for the IPG by the University of Bath,based on contributions by Member Countries. A revision is currently in preparation. Meanwhile a next step has been taken by the preparation of a report on the value of these sources and services from the point of view of their technical development, their effectiveness as a means of communication among social scientists, and as a means of communication between social scientists and other concerned with societal problems and their resolution. This report is highly critical of information services in the social sciences : it believes them to be under-developed and under-used, and in these respects to mirror the situation in many areas of the social sciences themselves. Future work here is likely to develop into case studies to explore in greater depth the information problems in particular areas of societal significance, to test the preliminary diagnoses given in the report and to see whether remedies can be suggested.

Environmental Quality Information and Data

The early IPG work in this area had been aimed at a "blueprint for national and international exchange of information and data in the field of environmental quality and management. When detailed study began it became apparent that the co-ordination of national effort in this field had in most countries not yet reached the point at which international co-ordination could become possible. For this reason a more intensive study has begun on one aspect of environmental management : the control of the unintended occurence of toxic chemicals in the environment. This, as we get more deeply into the problem, will be focused even more finely in the future to look at one or two chemicals of current particular significance. This work is being done in close collaboration with the OECD Environment Committee, and in discussion with other intergovernmental bodies, such as the ECE in Geneva, who are also concerned in this field. Meanwhile, IPG have passed a formal resolution calling for the establishment of some kind of national mechanism, or "focus", for environmental quality information and data. Without this it is felt that not only is international working impossible but the effective use of much of the national data is very much open to question.

Information for Innovation in Industry

The proceedings of the OECD Seminar on "Government Responsibilities in Information for Industry" were issued last year and are available on demand from EOCD. Continuing work has explored the application of the findings of this Seminar in Member countries and is now increasingly turning to the way in which government sponsored services in technical and non-technical information for industry can form part of national policies for innovation. A recent seminar in Lisbon on "information for innovation in industry", put on by the Portuguese government under the patronage of OECD and with an international steering committee and participation, has carried this concept futher.

Networking of Information

In close collaboration with the OECD Computer Utilisation Group (a sister group of the IPG) a study is being undertaken of the requirements that scientific and technical information will place on the physical computer/telecommunications networks which are expected to develop in the 1970's. While these new information "highways" present new capabilities which appear to offer economies of scale, new and better services, direct user participation, their exploitation is associated with organisation problems at all levels due to

complexity and cost. The IPG study will look at some of the complicated questions of market-size, economic viability and the form and variety of information input and output and bring these to an OECD workshop on "Computer/telecommunications applications" later this year. Further work will be based on the outcome of this workshop.

Technology and Manpower Forecasting

What of the future ? The information revolution which is already affecting all our lives, will have an accelerating and increasing impact on all the links in the chain of communication from primary publications to final use of the data. The IPG is currently studying, through one of its consultants, the probable implications of this revolution as it will make intellectual and professional demands both on those engaged in the information profession and on those who are concerned as generators or users of information of all kinds. The members of the IPG are concerned in their daily work with the very practical problems of management of their national information resources. The factors affecting this management, in so rapidly developing a field, are becoming more numerous and more complex. An appreciation of what the future may hold in this field, both as regards technology and as regards the users' new demands for different kinds of information, is essential if national and international objectives are to be both forward looking and realistic.

4.8 METAL ABSTRACTS

by T. GRAFF, Editor
The Institute of Metals Representative

Metals Abstracts is published jointly by the Institute of Metals, London, and the American Society for Metals, Ohio. The Institute of Metals has published informative abstracts since its foundation in 1908 ; they were called Metallurgical Abstracts. The American Society for Metals started an indicative abstracting service in 1924 and changed in 1966 to the informative type. This was called Review of Metal Literature. The two abstracting services merged in 1968 and the present service on metals, metallurgy, and metallurgical engineering is called Metals Abstracts.

Metals Abstracts covers papers published in journals or symposia, as well as monographs or compilations of monographs, and books. The criterion for inclusion in Metals Abstracts is that properties or phenomena of metals (or applicable to metals), or processes affecting the properties of metals in a wide sense are dealt with in these publications. With respect to properties or phenomena this is extended into the physics or chemistry of metals in the metallic state, but not to nuclear properties ; at the other end of the scale established uses or applications of metals are excluded, for example, the use of aluminium or stainless steel for curtain walling is not regarded to be of direct metallurgical interest, nor is a structure made by conventional welding methods. This is, in a few words, the scope of Metals Abstracts.

Metals Abstracts is prepared and edited in two editorial offices separated by the Atlantic. The searching of the literature in London and Ohio is divided by geographical demarkation. The American Society for Metals is responsible for the literature published and printed on the American Continent and for all books, whereas we in London search the journals, etc., published throughout the rest of the world as well as those American journals which are printed in Europe.

The abstracts prepared by either editorial office are collected in London, sorted into 33 sections according to the subject, number-stamped and sent to a printer in England. The printing process used is a litho process and both editorial offices receive page proofs. London is responsible for the proof-reading, while the American Society for Metals in Ohio produces a monthly index.

The index is a key-word index and each abstract is indexed under 4-5 terms on average. The index cards are fed into a computer which produces : Print-out pages which are sent to London for printing, and a magnetic tape for retrieval purposes. This tape, called METADEX, is leased on a yearly basis and the subscribers receive tapes month by month.

The monthly issues of Metals Abstracts and Metals Abstracts Index, printed by the offset process, are published and dispatched together.

Metals Abstracts publishes about 25 000 abstracts per year, but in 1971, we published more than 28 000. Of these the Institute of Metals produced about 16 500 abstracts, the American Society for Metals 7500 as well as about 4000 x-references from cover-to-cover translation journals, mostly Russian. We in London have extensive exchange agreements with Russian institutes and organizations and have facilities for producing good abstracts rather quickly. We abstract more than 6500 papers from original Russian journals.

Throughout the year the abstracts of each section in the monthly issues are numbered consecutively and the American Society for Metals re-arranges them so that at the completion of the volume all abstracts of one section are grouped together. These annual volumes are printed and represent the final version of Metals Abstracts. At the same time the index is re-arranged by the computer and published as the cumulated annual index.

May I add a few personal remarks which although outside the specific activities of Metals Abstracts may be of general interest :

(i) The "information explosion" of publications seems to have levelled off to a marked degree in the USA, while I have noticed no such change in European, particularly Russian, and Asian publications.

(ii) Last year in Olivet, a whole session was devoted to primary journals and the effect of their standard on secondary journals. In my opinion the standard, particularly in respect of synopses in the primary journals has deteriorated since last year and this affects us greatly in the publication of our secondary journals.

Some European journals provide translations of the titles and abstracts or symposia. In many cases these translations are not only misleading, but entirely wrong. They represent therefore a dangerous trap to abstractors and also to the editors of secondary journals, as well as to users of the primary journals who do not speak the language of the original.

(iii) The difficulty in finding abstractors who know the subject well enough to write a reasonable abstract becomes greater every day. Even people with a university degree seem sometimes to be unable to write a clear sentence, to condense the contents of a paper into a short paragraph, and to emphasize the specific implications of a paper. To find, or rather "discover", somebody who has the knowledge of a foreign language in addition to that of the subject, and of English (in which our abstracts are published) has become almost impossible. Therefore, to maintain the former quality of the abstracts is now extremely difficult.

4.9 REPORT OF THE COUNCIL OF BIOLOGY EDITORS

by Karl F. HEUMANN
Secretary C.B.E.
Member of ICSU AB/Associations of Primary Publications Editors Working Group

The major recent activity in CBE has been completion and publication of the third edition of our Style Manual. This edition, while welcome, is quite late by our original schedule, to avoid a similar problem in the future, a committee on the fourth edition has already been established under Dr. E.J. Huth, a member of the earlier committee that produced our new book.

Arrangements for cooperation between this new committee and a parallel working group in ELSE, chaired by Christopher Rigg, are already well started. The fourth edition is expected to be a joint venture. It is dangerous to make a prediction of a publication date, but our intention is to have the fourth edition out in 3 years.

CBE has also published a book on the teaching of scientific writing, written by Dr. Peter Woodford. I also edit a newsletter for the Council.

There are about 325 members in CBE, representing about 500 journals.

4.IO THE RELATIONSHIP BETWEEN ICSU ABSTRACTING BOARD AND THE INTERNATIONAL GROUP OF SCIENTIFIC,TECHNICAL AND MEDICAL PUBLISHERS

by Paul N. ASSER
Secretary General of STM

The International Group of Scientific, Technical and Medical Publishers or STM Group, of which I am the secretary, now in its third year of existence, consists of some eighty publishers in sixteen countries. The number is constantly growing and this is not surprising, since it is for the first time in history that specialized publishers are able to shake hands across the national boundaries, and discuss matters of interest common to them all.

Though most of the STM members are commercial companies, we do have a few university presses, a professional society and several state-owned publishing houses, and we do not exclude secondary publishers. For example, we count ISI ans Excerpta Medica (a very recent ICSU AB addition) among our members. The accent, however, is on primary publications. At a rough guess some two-thirds of our members publish journals in addition to books, and other materials including non-books, and although eligibility to STM mainly depends on whether you are active in publishing in the scientific, technical and/or medical fields, preferably on a tertiary or higher level, a lot of our members do publish textbooks and material in various other academic disciplines than those mentioned in our Group's name.

So much for some general information. Again at a rough guess, the number of major primary journals published by our members is well over six hundred. This makes STM a major participant in all discussions on how to evaluate common problems, establish guidelines, etc.

In former days, I often had the impression that in many international organizations the private, profit-making sector, if at all represented, was largely ignored, and that the deliberations and decisions were taken in a kind of vacuum. Some of these decisions could affect the private sector's interests favourably, others adversely : the point is, of course, that the private sector had no say in the matter.

I am aware that insofar as concerted action on the side of STM is concerned, not much has as yet been done. In this aspect , too, publishers are very similar to authors and if I understood you well yesterday, scientific authors are very difficult to educate. I agree wholeheartedly but I confess that this individuality which scientists and their publishers and editors have in common does not always, at least not quickly, lead to the results desired.

If, however, my Group can contribute to the changes in mentality necessary for an improved information control and thus for greater knowledge if not wisdom, I will be the first to encourage it. It would, however, be in everybody's interest, and not in the least in the interest of my members on whom many abstracting services are at least partly dependant, to remain firmly on the ground and tackle the problems which are really basic and everyday.

In the words of Professor Ziman, let's not make our systems too sophisticated, let's first improve the wheelbarrow, and in the words of Mr. Garrow, slightly adapted, let the user get what he wants. Publishing, whether for profit or not-for-profit, whether primary or secondary, should never lose touch with the down-to-earth consumer. If the user demands and gets 90 % junk, that is all right as long as he is willing to pay for it. But there is a distinction between the user's demands and his needs. I think that this is where the discriminating publisher should step in and decide where, by his publishing decision, he can exert the greatest influence. This decision should not only be based on that he thinks should be needed in the marketplace. Should this be so, then he could simply confine himself to producing his journals, his tapes, his microforms, his books and all other kinds of services, fold his arms and wait for certain failure. This is what many publishers do, but are they, in fact, publishers ? In my opinion, they are printers (US Government Printing Office) or stationers (H.M.S.O), or private presses, but, in this respect,

we cannot call them publishers, since publishing includes dissemination, distribution, sales, marketing and all the activities necessary for reaching the public. Whether this public is paying for it directly and individually, or indirectly and collectively, is irrelevant though not immaterial. The relevant part of the publishing process is that the public is willing to avail itself of this service, and this is something which, in these days of increasing governmental power, is often forgotten. Many government institutions are self-perpetuating and even in science bureaucracy is impressive. We all have to live with it and we would be silly to ignore it ; in fact, government influence often entails great benefits from which many publishers, commercial and non-commercial, have profited. If bureaucracy is a side effect of these benefits, let it be.

But would you want to continue building up and expanding your services to your public if you became aware of sustaining considerable losses, perhaps paid out of taxpayers money ?

Wouldn't you think of making it known to more people, to streamline the distribution, to save on overheads, to try and eliminate bottlenecks caused by oldfashioned instructions not geared to modern methods and international professional standards ?

In fact, if the public apparently does not want your and our books or services, there must be something wrong, and this is what both of us are trying to avoid : basic errors, essential misunderstandings. Bad, or amateur, editing may be one. Inaccessibility, either caused by faulty bibliographic or indexing methods, or by the absence of marketing and distribution systems, may be another.

But these problems can be solved. I am convinced that the traditional publishers, who have, after all, a five-hundred-year old experience in educating scientists to write as well as to buy books, can contribute much to your efforts. After all, you are a branch of the same tree : information transfer is what we are all involved in.

I therefore hereby offer whatever influence I have in calling on my members to cooperate with you, and I hope that our organizations from now on will successfully tackle common problems and solve them by concerted efforts.

Finally, if I thus consider you as involved in publishing, although a kind of publishing slightly different to what has been done all these five hundred years, may I point out one essential thing we have in common : the proper care for the intellectual property of others. Many of our information transfer products and systems exist because of the economic protection granted the original works under copyright. During all those centuries, and still at the present day (I am going to quote from a recent article by Paul Doebler), we "sold these products by the copy, and not by the number of facts contained in each copy .

Yet all a data bank needs is one copy, which then", theoretically, "can be recopied piece-meal for each query received. So the data bank" or the recopying device, or, in fact, the person who operates this machinery "in a very real sense becomes a new publisher, assembling a new product for each customer. But in the process it could well destroy the revenue base that supports the author and publisher who created the primary information".

By not working together we will both suffer. By working together I am sure we will overcome. I look forward to working together with you all.

4.11 CENTRAL LEATHER RESEARCH INSTITUTE INFORMATION SERVICE BY AN INDUSTRY-ORIENTED RESEARCH ORGANIZATION : A CASE STUDY

by M.V.R. RAU
Information Scientist

An industry-oriented research institute such as the Central Leather Research Institute (CLRI), Madras, can serve as an information and documentation centre for the leather and allied industries. Trends in the Indian leather industry are mentioned. The objectives, the pattern of flow of information and its role in planning the activities of CLRI, the lines of liaison between the leather industry and CLRI and the different channels of dissemination of information and documentation service provided by CLRI to the leather industry are discussed. The proposed plan for improving the service is outlined.

1 RESEARCH AND INDUSTRY IN INDIA

11 Increasing Mutual Impact

India today has a large network of research organisations devoted to the development of indigenous know-how with a view to accelerating industrial production and economic growth and thereby lessening her dependence on imports of materials and know-how. A recent survey has listed 1,374 organisations with Research and Development (= R and D) activity in some measure or other (2). Currently there is intense interest on the impact of such activity on the industries and the extent to which the investment in them has been justified in terms of decreasing our dependence on foreign expertise. The increase in expenditure on industrial research in relation to the total investment on scientific and industrial research and the industrial growth as reflected in the outlay on industry during the different plan periods is given in the table in the Appendix to this paper.

111 CSIR Research Centres

In 1950-51 there were only 7 national laboratories in the CSIR complex, while today there are 30 such laboratories employing nearly 11,270 scientific and technical workers of different categories (1).

12 Need for Documentation Service

There is thus evidence of an increasing degree of entrepreneurship and a large accumulation of Indian know-how. This knowledge has to be effectively channelised to those who can exploit it. The necessity to gear documentation service to the growing demands of entrepreneurship has been realised only in recent years. The need for efficient documentation service to keep scientists and technologists abreast of the latest developments in their respective fields of interest has been felt only in the last decade in the national laboratories, research centres and a few industries. The emphasis has to be on establishing channels of communication with the user industries, for creating an awareness of the new techniques, processes and products being developed within the country and abroad, and about the potential for their exploitation.

13 Information for the Leather Industry

The research of the CSIR complex being oriented to a variety of industries, it may not therefore find an omnibus information centre such as the INSDOC, as adequate. Realising this, INSDOC has been attempting to develop individual research institutions as information centres for specific industries. Some of the industrial units, such as CIBA, Hindustan Levers, and ICI (India), and the cooperative research organisations, -- such as ATIRA and SITRA -- have their own information centre. But there are industries who do not come within the range and scope of any of the above. The Leather Industry is an example. In this case, the research Institute (CLRI) -- becomes almost the only information centre to serve the industry.

2 Indian Leather Industry

The Indian leather industry has an estimated annual output of over Rs. 1,200 million. It is largely an export-oriented industry. Its foreign exchange earnings in 1968-69 was about Rs. 860 millions, constituting nearly 6.5 percent of the total Rs. 13,150 millions earned by the country. The exports comprise of (1) Unprocessed items -- raw andppickled skins, and (2) Items to be processed further -- E.I. tanned leather and chrome tanned leather in blue ; and (3) Processed items -- finished leather, leather footwear and

components, leather travel goods, harness and saddlery items, leather apparel and industrial leather products. The largest share is claimed by processed items. The performance targets fixed for 1973-74 envisage elimination of (1) and increase in (3). The industry exists in the organised, small and village scale levels, the export contribution arising mostly from the first two categories. Till recently it has been largely a craft, leaning heavily on human labour. It is now becoming mechanised to an increasing extent. The village scale level, till now contributing largely to local consumption of leather, is now expected to have a share in the exports also. These changes would create a need for know-how relating to processes, processing materials, and for qualified personnel. Unlike in the industrially developed countries, the Indian leather industry is not backed by highly developed chemical and engineering industries capable of supplying all the auxiliaries needed by it.

3 Central leather research Institute

The objectives of the Central Leather Research Institute (CLRI) are :

1. To facilitate change of the age-old leather industry from a craft-based one to a science-based one ;
2. To tackle, through science and efficient management, the industry's economic, social and human problems.

To achieve these goals, the CLRI

1 Carries out fundamental and applied research ;

2 Develops know-how ;

3 Carries out demonstrations of the application of scientific and technical knowledge ;

4 Disseminate knowledge at all levels of the industry ; and

5 Trains technical personnel.

From the point of view of national development, import substitution, export promotion and meeting defence needs are important considerations in planning the Institute's activities.

31 Role of Information

It has been estimated that CLRI has been instrumental in effecting import substitution to the extent of about Rs. 20 million, and export promotion to the extent of Rs. 900 million. By its activities, the Institute has contributed 51 per cent of the recurring expenditure incurred so far from its inception. All this has been possible mainly because of effective two-way information flow between it and the industry.

In close liaison with its clientele, the institute draws up its annual programme of activities, carries out this programme and disseminates the information thus generated to the appropriate user.

4 Liaison with industry

An awareness of the problems of and technological gaps in, the leather industry is the basis of the activities of CLRI. Over the years, the Institute has built up a close liaison with the Industry as also with the institutions and organisations connected with the industry. The inflow of information needed for planning the activities of the Institute is effected through several channels. These include :

1. The five regional extension centres of CLRI at Bombay, Rajkot, Jullundur, Kanpur and Calcutta with their scientific and technological staff acting as feeder services vis-a-vis the problems of the industry in the particular region.

2. The periodic techno-economic surveys carried out by the Institute personnel is another means of its becoming aware of the problems of the industry.

3. CLRI receives and handles numerous enquiries relating to various aspects of leather science, leather technology, leather industry and leather trade. The enquiries range from requests for casual information and data to supplying turn-key jobs for establishing tanneries or factories for production of leather auxiliaries. The enquiries represent a cross-section of the Industry's needs and problems.

4. The various demands for technical aid made on CLRI by the industrial units all over the country, within or outside the scope of the Retainer Scheme formulated by the Institute, the consultancy services rendered by the Institute and the Guest Tanner Scheme whereby an enterprising tanner is given an opportunity to iron out the problems faced, are also means for feeling the pulse of the industry.

5. CLRI invites members of the trade and industry as also scientists and technologists to address the CLRI staff, at the weekly seminars. The suggestions and proposals made therein are duly considered while planning the activities.

6. The annual Get-Together of tanners, leather traders, representatives of organisations connected with the leather industry, scientists and technologists from India and abroad serves *inter alia* as a forum for presenting and discussing the programme of activities of CLRI for the coming year.

7. Leather being an international commodity and also a major item of export from India, the activities of CLRI have to be planned in a global context, with due reference to similar problems faced and work being done elsewhere. International Conferences, such as the Biennial Congress of the International Union of Leather Chemists and the Informal Club of the heads of the leather research institutes the world over, provide an effective means of minimising the duplications of research in the field and coordinating research at an international level.

   The international assignments given to the Director and other staff of CLRI serve to bring to light the problems in developing countries.

8. CLRI is represented on all the bodies concerned with leather and allied industries and also on the national policy-making groups. This makes it possible to evolve an integrated plan of activities fully geared to the plans for national development.

9. The advisory committees for the different areas of CLRI activities consisting of specialists provide the correct orientation to the plans drawn up.

10. The Executive Council of CLRI composed of distinguished representatives of the industry, trade, government and organisations working for the industry is the authority for the final approval of the plan of activities.

The information flowing in through the various channels mentioned above will be both in document and non-document forms. The utility of the information thus obtained goes beyond the stage of planning of CLRI activities. The documents containing the information has to be collected and searched when necessary for disseminating information to the industry.

5 Flow on information within CLRI

51 Documentation List

The carrying out of the activities of CLRI requires proper flow of information within the organisation. The R and D projects require :

1. Information about what has already been done in order to determine the actual take-off stage ; and
2. Information on methods, processes and materials and the theoretical base for them.

The documents of the library and information sources in other sections are utilised. As part of the information service to the research workers, CLRI produces the following :

1. Leather Titles Service - a trimonthly advance documentation list based on the scanning of documents received in the library, with reference to the activities of CLRI ; and
2. Current Leather Literature - a monthly abstracting service.

52 Record of Work in CLRI

The primary record of what has been accomplished is the quarterly report of the R and D workers, cumulated into half-yearly and annual reports. The latter provide the necessary feedback to the Executive Council. The information in the reports either finds an outlet in various forms regularly or is utilised as and when required. For the latter purpose it has to be well documented.

6 Dissemination of information to the industry

CLRI disseminates information to the industry in various ways. Some services are provided in anticipation of demand. Others are provided on demand.

61 Anticipatory Service

611 Conference

The weekly seminar, the symposia organised in India and the international conferences constitute one kind of media for the presentation of results of research done in CLRI. The information presented in this way may ultimately be embodied in articles in periodicals and in monographs. The published documents are of different kinds :

1. Research papers - full length and short communications - published in the Leather Science, (CLRI), and in other learned periodicals ;

2. Papers on processes incorporating the know-how for the industry, published in Leather Science, Thol vigyanam (Tamil), Charma vigyan (Marathi and Hindi), all published by CLRI and in other periodicals. These papers are brought out from time to time cumulatively as Process bulletins ;

3. Patents covering the potentially utilisable developments relating to leather auxiliaries, processes in leather making, and utilisation of products. The patents are handled by the National Research Development Corporation. CLRI supplies the non-technical notes ;

4. National Standards and Specifications formulated in collaboration with the Indian Standards Institution ;

5. Reports of techno-economic surveys conducted within the scope of the annual programme of activities of CLRI ; and

6. Publicity folders, handouts and newspaper articles.

62 On-Demand Service

621 Consultancy Services and Special Assignment

The Institute has come to be looked upon as a competent industrial consultant having the necessary experts and expertise. The demands made at both the national and international levels mainly relate to production units, such as for

1. Settingup a tannery or leather auxiliary, footwear or leather goods in a particular region of India or in a developing country, often involving turnkey jobs ;

2. Reorganising and rationalising the functioning of "sick" production units ;

3. Drawing up feasibility reports and blueprints for developing leather and allied industries in different regions of the country ;

4. Assignment as expert deputed by world bodies such as FAO, UNIDO, and UNDP, for developing leather and allied industries in developing countries, and

5. Carrying out trade and market surveys for assessing export potential for leather, its products, and bye-products.

Such services cannot entirely be based on published sources of information. Actual surveys, on the spot studies and data collection are important phases of these services. The information generated, may, in its final form, be a document not of the conventional type, which would quite possibly be the basis or model for other similar situations. This information needs to be documented.

622 Technical Service

CLRI has a pilot tannery offering common service facilities and tannery scale trials and testing laboratories for giving analytical and test reports. The information thus generated and supplied to the clientele has a storage and search significance in the context of quality control and formulation of standards.

623 Technical Enquiry

Technical enquiry may be of the following kinds :

1. Request for addresses of suppliers and manufactures in the field of leather and leather auxiliaries ;
2. Solution for some process difficulty encountered in the manufacture of leather and leather auxiliaries ;
3. Know-how for the manufacture of special types of leather, to meet special requirements of customer and technical auxiliaries ;
4. Request for library service -- publications of CLRI, reprints, photo-copies, translation, adhoc bibliographies and the like ; and
5. Selection of suitable personnel.

Information supplied in response to the above kinds of queries may be available from conventional bibliographical tools and trade documents in the case of (1) and (4), and derived from accumulated information or that worked out specifically through the expertise available at CLRI in the case of (2) and (3).

624 Practical Demonstration

Practical demonstrations are held by the CLRI staff of the base or of the extension units, at suitable centres. They are tailored to the local needs and availability of raw materials and processing facility. Follow up service after the demonstration is also available. The demonstrations may be open or closed. Frequently the know how in the open demonstrations is published as process papers.

7 Organisation

71 Documents

The conventional sources of information for Anticipatory Service are amenable to the well tried methods of organisation and arrangements modified to suit the local exigencies. But the information is need for the On-Demand Service is of the non-conventional type. The information disseminated has something more than a current utility and has to be made available for recall.

72 Consultancy Service Report

The activities under Consultancy Service and special assignments when completed often result in reports containing the necessary suggestions, recommendations, and plans. Some may be of a confidential nature and are not available for dissemination. However, all the reports are to be classified and catalogued and stored with the other reports. It may be not so much the actual information contained therein as the methodology that is required for reapplication.

73 Data from Technical Survey

The data collected in technical surveys are also to be well indexed to facilitate their effective use.

74 Answer to Technical Enquiry

The answers to the technical enquiries are currently being filed broadly according to the subjects of CLRI activities -- for example, raw hides and skins and related bye-products ; collagen ; tanning and finishing processes ; footwear and leather goods ; leather trades engineering ; and leather economics. Before an enquiry is answered, a check is made for availability of information. Efforts are being made to have an improved classified arrangement of the documents with an alphabetical index of the parties seeking information and the subjects covered.

75 Research Programme

Research programmes and research data are obtained from leading centres of leather research on an exchange basis. This advance information for restricted circulation is received by virtue of the special status enjoyed by CLRI in the world of leather research. It is planned to keep the information so received in loose leaf folders and indexed by problems undertaken for research and solutions obtained and by the organisations. Information of interest from sister laboratories is also being handled similarly.

The following system is envisaged as regards the research programme of CLRI.

Each programme is indexed according to the problems, objectives and the research workers concerned. The problems are broadly classified according to the research areas of CLRI and are correlated to the information on the progress reported in the periodical progress reports.

It is proposed to have an integrated system for getting all the details inclusive of the problem undertaken, the progress made each quarter, the personnel involved, the capital and recurring investments made, the papers and other publications resulting out of these efforts, the patents resulting from it and the extent to which the industry has been benefitted. The entire system is under review. The main purpose of this is to minimise duplication of research within and outside the Institute and to ensure greater coordination with emphasis on the economic and industrial benefits.

8 Conclusion

1. There is an urgent need for understanding the types of information required by the industry and developing the techniques for processing and disseminating it in the form required.
2. Information emanating from discussions, informal seminars, official correspondence, non-published technical reports etc., is important
3. The close cooperation and participation of the technologists in the documentation service of a research organisation can produce greater efficiency in the service.
4. Special techniques for the processing, storage and dissemination of information of relevance to industry should be developed.
5. A centralised organisation, such as the INSDOC should ensure the quick dissemination of information about patents and special reports containing industrial information of relevance to each R and D centre.

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This paper was also presented at the 1970 Annual Seminar of the Documentation Research and Training Centre, Bangalore.

92 Appendix

Table 1. R and D Expenditure

Figures in 000,000s

Plan/Period	Total outlay	Outlay on Industry	(3) as % of (2)	Scientific and Industrial Research	CSIR Expenditure
I Plan (1951-56)	41,770	1,880	4.5		
II Plan (1956-61)	72,000	7,700	10.7	720.00	
III Plan (1961-66)	116,000	25,700	22.1	1444.90	533.8
IV Plan (1969-74)	248,820	53,380	21.5	3385.80	1211.2

Source of information :

1. Economics Year Book

2. Commerce, 120, 3081 ; 1970 May 23 ; ix

3. INDIA, PLANNING (-Commission). Fourth five year plan, 1967-74. P 381-3

S E S S I O N V :

ROUND TABLE :

" EDUCATION OF SCIENTISTS IN THE USE

" OF INFORMATION "

Chairman : J.J.LLOYD

5.1 TEACHING SCIENTISTS TO FIND INFORMATION

by J.M.ZIMAN

Professor,University of Bristol

Suppose one had to tell a graduate student how to find information on a subject with which he was not fully familiar : what would one say ? My answer would be somewhat as follows :

This is a task for which there is no perfect mechanism analogous to looking at a clock to find out the time. Getting information is so central to scientific activities that one cannot prescribe a simple formula which will always be successful. Many sources are available : the choice of strategy will depend on the particular circumstances.

But the first step -and easily the most efficient if it is successful - is to find the man who really knows. Very often, he is someone on the premises - another member of your research group, a senior colleague of specially scholarly intellect, or some resident sage. He will tell you what really matters and you can have a helpful dialogue with him which ensures that he (and you) really understand the question whose answer you are seeking. There is no subsitute for the personal authority of the expert. The information buck stops with him.

Unfortunately, the librarian is not much use as an authority on scientific information : he is by definition, an authority on books, so his role comes later in this account.

Many people are so confident in authority that if they can't find one on the premises to talk to, they write to him. Unfortunately, the choice may not be obvious. For example, the man who wrote a book on the subject ten years ago is not necessarily still interested or informed about the latest developments. Again, it takes a bit of initiative to write such a letter, and an answer is not guaranteed. A passive technique is not uncommon : to wait for years until an authority happens to turn up at your laboratories and then spring the question on him. Actually, if there is no genuine authority on the subject in your own country -this can easily happen in a developing country with a small scientific community- you are free to make up your own information : this has obvious advantages, since you can proceed with research to the benefit of your local academic career, though not perhaps in a way that helps your international reputation. This comment is not entirely a product of my own imagination !

But if a competent authority is not immediately available, you should look for a book on the subject. Here your friendly neighbourhood librarian may be able to help you, although a browse along the library shelf may turn up something. Of course you must never consult an encyclopaedia : the article may be written by the greatest living expert on the subject, and may seem perfectly clear, but of course he has had to simplify his account for the benefit of the lay public and therefore it cannot be trusted for real scientific information. Much better to turn to a standard work, first published thirty years ago, but available in a third edition of ten years ago. Here is the perfect written authority a work whose ideas have stood the test of time and therefore must be true. Be careful,however not to bok into a second book, which may not agree entirely with the first. That would be confusing, and might make you doubt the information you have gleaned from the first book.

If there is no book, then you will have to be satisfied with a non-book, a volume of "Conference Proceedings". Thumb through this for the topic

you want - ah yes, a very neat little paper (only ten minutes were allowed for its presentation at the meeting). In fact, it is so short and clear that it provides exactly the information you need. You can ignore the "discussions"reported at the end of the paper : the main purpose of this is to satisfy the egos of those who intervene. It will not of course, be possible to check the standing of the author of this contribution to the conferences although it may not be without significance that he is from the University of Timbuctoo. For reassurance, one can check that the results reported in the 1965 Conference do not differ substantially from those of the same speaker in 1963 and in 1961: they have stood the test of time.

The great advantage of a volume of Conference-Proceedings is that it presents an outline of the state of the art in a particular field at that moment. One does not have to collect all the papers by all the participants out of miscellaneous journals. It is a sort of lazy man's current awareness aid, although normally retarded by five years.

If there is no Conference volume, then you must look for a relevant review article. This may not be so easy, unless there is some standard review series in the field which can be thumbed through to disgorge a suitable paper. Your librarian ought to be able to help find other reviews in more diffuse collections.

But by now you may have begun to worry about being reasonably up-to-date. You discover, alas, that the latest review was published in 1967 and cites primary papers up to 1965. The fact is that the editor of the review series recently asked the most reliable authority to write a new review or to suggest a suitable author, and got the answer that "the subject was presently in such a state of flux that the time was not ripe for a review". Alternatively, you may find fifteen rather scrappy reviews of the same narrow topic in a variety of places,it being the fashionable band wagon passing by. Fortunately, five of these are almost identical, being key-note addressed to various conferences by the same distinguished pundit, plugging the work of his own group.

The difficulty about gathering information from a review article is that it is customanly written in cryptic, veiled and jargonized language. It assumes that you know all about the subject already, and only need to have your memory jogged about some of the more obscure or absurd contributions. But what does it mean when the author says "this point has also been discussed by Mc Alister, Mc Whiter, Mc Gregor and Mc Tavish (1957)" ? Does one have to look up the Proceedings of the Aberdeen National Philosophy Society for enlightebments ?

At this point you may well give up, and assume that nothing is known about the point you want answered. But wait, what about Physics Abstracts ? The librarian will lead you to a back room, and you take down from the dusty shelves the latest volume. No, not quite, the six volumes for 1964 (more recent issues are being bound). You turn eagerly to the subject index. Yes, indeed there are no less than three pages, double column, under the single heading "Ferro-electrics". Which ones are relevant ? You try to decipher the few words under each entry. Number 53972 looks hopeful, so you turn over the bulky volume. It turns out to be an experimental study on a few familiar compounds at the Bokhara Academy of Sciences : not likely to be very instructive. Anyway it will take a day or two to get it on Interlibrarian Loan. Another item in the index is equally fruitless.

But in turning up this latter item, your eye is caught by another entry that looks relevant. Checking the original in the primary journal gives you a few other basic references which are cited as if significant. So you change your search strategy and leaf quickly through the appropriate sections in the monthly issues of the abstract journal, the current issues which have not yet gone to the bindary. In an hour or so, you have called a few dozen primary papers in the core journals that are obviously relevant, and also a couple of reviews that were hidden away in unsuspected corners of the literature. It is not necessary now to search back into earlier issues of the abstracts, at least until you have assimilated the basic papers that really establish the structure and concepts of the information being sought.

By this stage you will have begun to realize that quite a lot of specialized services are becoming available to the earnest seeker after truth . Here again the librarian becomes your authority. It is his responsibility to know about abstract services, data banks, information centres and other devices which might be called to your aid. Lean heavily on him : there are occasions when the last ounce of information is worth its weight in gold.

Let me summarize with some general principles :

Real knowledge is only to be found inside people.

An ounce of critical appraisal is worth a ton of relevant rubbish.

Librarians may not know all the information inside the books or other documents they store, but they can often be extremely helpful in suggesting where that information is to be found.

Cryptic index items in a long list conceal more than they reveal.

No machine can replace the searching eye linked to the discreminating brain.

One has to learn to glean information, even in the old fashioned, browsing, inefficient way, just as one has to learn how to identify a geological specimen or to write a computer program. This is an essential stage in learning the art of research, which should be acquired during graduate school. It is the duty of the research supervisor, not the "information specialist", to give this instruction preferably by example and confirmed experience.

5.2 INFORMATION IN SCIENCE

by F.A.STAFLEU

Secretary-General, ICSU

It is hardly necessary to ask whether the practizing scientist in general is well educated in information : he is not.

This panel consists mainly of people from the field of information and hardly from that of education. The question that we must ask ourselves is therefore : how do we reach the scientists engaged in education.

The classical approach to information in science is that of bibliography. The Royal Society started this in the 19th century with the R.S.C. of Scientific Publications. The Smithsonian Institution in Washington included among its stated objects in the middle of the 19th century the task to diffuse scientific information.

Why then, if this awareness of the need for a reasonably effective flow of information has been with us for 100-150 years - why then is it still necessary to discuss the education of scientists in the use of information ?

We are dealing with a situation in which :

a) the amount of information produced has increased dramatically.

90 % of all natural scientists that have ever lived are still alive.

b) many entirely new methods of information transfer have been developed. The building up of electronic data bases is characteristic. Classical printing and dissemination of printed material is being replaced by electronic means.

Until 20/30 years ago a scientist could still think that he knew his field and his colleagues sufficiently well to have a reasonable overview of the scientific output in this field without any further means such as secondary publications, data centers and the like.

However, it is surprising to someone working in the University world how common this feeling still is. The lone wolves are still with us and usually do not realize what they miss. Actually very often the attitude of the research scientist towards the world of scientific communication is one of reserve or even of hostility.

How do we change this situation ? It is not easy.

In the first place we should realize that in spreading the faith information specialists should not look only at the primary scientists but also at themselves.

The danger of any group of specialists is that they tend to talk mainly to themselves. This may be objectionable in research scientists but is absolutely inadmissible among information specialists. ICSU AB can perhaps play a role here. One step was for instance the creation of the working group on contacts with primary publications.

With respect to the research scientists themselves we must try to make them aware of the fact that they themselves are part of the information process. Their work, their data bank/brains, their publications, their contributions to congresses, their educational activities. It should be made clear that it is not only a duty of the scientists to accumulate information but also to communicate it.

Furthermore the creators of information are also great consumers. (Francis Bacon : we stand on the shoulders of our ancestors).

It is the role of the universities to bring about this awareness ; it is the task of groups like ICSU AB to help them with this progress e.g. by making training tools available. Simple courses in information techniques are often too dreary. Such knowledge and skill can just be obtained through ordinary courses of a strongly practical character ; e.g. as part of the preparation of reports or publications after the research has been completed.

The main topic to be discussed here today is therefore, in my opinion, how we can bring about this awareness of the essential values of a smooth transformation of information.

5.3. COMMENTS ON THE SYSTEMS RECENTLY DEVELOPED TO MAKE THE PRIMARY AND SECONDARY LITERATURE MORE ACCESSIBLE

by C. GARROW
CSIRO, Australian Scientific Liaison Office.

Although scientists obtain and use information from many sources, including personal communications, meetings, reports and text books, the following comments will be concerned with the systems which have been developed recently to make the primary and secondary literature more accessible.

However, before discussing this subject it is important to note that scientific research is now heavily funded by governments and industry. The taxpayer and the industrialist are prepared to pay for research provided they are confident that the scientific information it generates is efficiently transferred to users and to meet national and industrial needs. Scientific research is no longer the province of the gifted enthusiast or amateur but is largely practised by professional research scientists. This new situation is changing many of the attitudes and customs developed in the era of non-professional science. Perhaps in the new era the retrieval, assessment and transfer of what is already known will join with the discovery and application of new knowledge as a major responsibility of the scientific professions.

In the present in-between period there are some curious situations. On the one hand there is an enormous amount of time and money involved in the preparation and publication of scientific literature which has a shorter and shorter effective life, while on the other hand there are relatively small efforts and resources allocated to the objective of making this literature available to users.

It seems that the scientific information problem will increase in seriousness as science and technology moves from single discipline specialization and "reductionism" to the multi-disciplined approach which appears to be more and more essential for the solution of our environmental problems. Also, it is clear that communication techniques developed for scientists will make a significant contribution to the problems of communication generally, for example, in government and industry, and for the community at large. However, it does not seem a fruitful exercise to try to entice away those scientists who are wedded to more traditional techniques of obtaining information from the scientific literature. Rather, the effort should be concentrated on those scientists who are interested in the new information technology.

If it is accepted that scientific information is a national resource, or international, obviously governments have a significant role in determining how to exploit it. The professional societies have a special responsibility to alert governments as to how this resource should be most effectively used. Much has been done in a number of countries, but it seems that more could be done. The situation demands the establishment of permanent expert bodies for suggesting ways and means of ensuring that by the efficient transfer of information the best return is obtained from the very large public investment in scientific research. Coupled with this is the need to advise industry, research institutes, universities and colleges as to how they can achieve maximum return from information resources.

Most importantly there is the need to inform or educate the user - the scientist and technologist - in the most efficient methods of handling scientific information. This seems to be the combined responsibility of the sponsors of research and professional scientific bodies particularly those which are generating new information technology. Obviously the publishing and computer industries also have an important role which no doubt will be stimulated by commercial incentives. Hopefully the universities and colleges will take over the responsibility of educating the future generations of scientists and technologists in information systems, as the needs become obvious and the methodology is established. In this connection it is encouraging to note that educational packages are being developed by institutes such as IITRI, in collaboration with the American Chemical Society.

But what can be done in the meantime ? It was suggested that the educational effort should be concentrated on scientists who are interested in more efficient methods of using information. Firstly it seems essential to involve users in the educational process whether it is in honing profiles or the development of better abstracts and descriptors. It seems that to do this effectively the information analysis centre concept should be strengthened and that one of its principal functions should be to collaborate with the user. The objective should be to select and make available appropriate literature for individual users needs and not to select and retrieve all the literature. The information scientist should collaborate with user scientists, who, no doubt, will proselytize their colleagues in something of the same way that extension workers use a demonstration farmer to convert his more conservative colleagues to a new technique.

A recent C.S.I.R.O. trial in Australia of an SDI service based on CA Condensates will underline the need for collaboration. In this trial there were 31 users all of whom had volunteered to assess the effectiveness of the service. It was assessed as very useful by 11 users and useful by 8 users. The remaining 8 users believed that they had been better served by other services ; 4 users did not reply. One of the most important results of the trial was the finding that there had been a lack of communication between the user and the profiler. Users had not been involved sufficiently to make a serious attempt at understanding fully the operating principles. In the light of this trial the C.S.I.R.O. Information Service believes that users must take a more active part in the system by accepting the responsibility for maintaining or improving the search performance of their profiles. To assist in this educational process the C.S.I.R.O. hopes to decentralize the profiling function to laboratories where there will be someone - a Librarian or Information officer - who will be responsible for the construction and maintenance of profiles as well as monitoring the output.

It is suggested that some sort of classification or filtering system should be investigated to assist users in the selection of literature and that the abstracting services and/or the information analyses centres should be involved in this task. This is obviously a difficult problem but sooner or later the nettle must be grasped. Otherwise there is the danger that the user will be overwhelmed with references. The classification system might take the form of a description of the nature of the paper. The Treatment Code developed by INSPEC to describe the aspect dealt with by an author in his paper - Applications, Bibliography/Literature Review, Economic/, Market Survey, General/ Review, New Developments, Practical, Theoretical/Mathematical, and Experimental is an example of a classification scheme which is helpful to an SDI service user.

It is also suggested that the incentives provided to encourage the preparation of reviews should be re-examined. Although the preparation of literature reviews should be regarded as an essential activity and responsibility of every laboratory which has interests in a special field, it is difficult to get busy scientists to accept this extra burden. Perhaps incentives should be provided by the editors of the primary journals such as offering preferred publication to those scientists who accept this responsibility.

But is it possible to get scientists to face up to the realities of the present situation ? It seems that the only really effective way to do this is to use every opportunity in the scientific, technical and lay press and other media including scientific meetings, to argue the case. This is finally the responsibility of the professional societies and information scientists.

And now to the question of who pays. Is all this activity a charge on the public purse in the way that public libraries have become ? Or should the costs be the responsibility of the user ? Services provided free of charge tend either to be not valued or over-used leading to irresponsibility on both the part of the provider and the user. But if the user is to be charged for these services this surely means that the financial aspects of the whole field of publication should be examined. For example, if it is reasonable to charge the author or his employer for the privilege of publication, it seems a reasonable proposition to suggest that those who use information should pay the cost of it being readily accessible, particularly as the users of scientific information greatly exceed the number of scientists who generate it. However logical this sort of approach may be it is obviously going to demand a good deal of effort on the part of information scientists, publishers and the computer industry to make it acceptable. An appropriate financial basis in a particular country will also depend very much on the stage of that country's economic and scientific development, its information science facilities and so on.

Finally it is again stressed that the transfer of information is really a two-way process involving feed back. Education of scientists in information technology demands the development of systems that involve and encourage them to participate and comment on the information retrieved. This needs informed and aware people being involved in the selection, assessment and transfer of information on the one hand and participating and interested users on the other. There seems to be no other way of achieving involvement and awareness on the part of the scientific users than really objective studies on the part of the scientific users than really objective studies on the part of the governments, professional societies, publishers, computer industry and information scientists based on actual trials which should clearly indicate what can be achieved using sophisticated technology, what gains can be promised

working scientists and technologists and what the costs are. And the future of an information retrieval system is bright if the comments of Dr. J. Bentham of the ICI Australia Ltd. Central Research Laboratories are representative of scientists who have become converted to the new technology. In the Proceedings of the Royal Australian Chemical Institute March 1972 (1) he writes about computerized retrieval services, in particular those derived from Chemical Abstracts Services as follows :

> "By simply defining your area of interest in chemistry in terms of keywords and chemical fragments the system enables you to receive regularly a set of record cards indicating what is being published currently in your area. This is so clearly useful that it needs no further explanation".

Acknowledgment

The kindness of my colleagues Miss Betty Doubleday and Mr. Peter Dawe of the C.S.I.R.O. Library and Information Service in providing information on the recent C.S.I.R.O. SDI trial is gratefully acknowledged.

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S E S S I O N 6 :

INDEXING OF PRIMARY JOURNALS

Chairman : A.J.C. WILSON

6.1 REPORT ON INDEXING OF PRIMARY PUBLICATIONS AS A PROBLEM FOR SECONDARY SERVICES

by Ch. WEISKE, Editor C.I.D.B.
Member, ICSU AB/Associations of Primary Publications Editors Working Group

In this paper the indexing of primary publications is investigated from the standpoint of secondary services.

Considering the present situation nearly all scientific journals have tables of contents - a special kind of index - in one or more than one language in each issue consisting of the author names combined with the title of the paper (Westnik Moskowskogo Universiteta : English, Russian) which are in some cases completed by key-words (Tetrahedron Letters). The order of the entries in the tables of contents is either corresponding to the arrangement of the papers in the copies (Justus Liebigs Annalen der Chemie) or follows scientific aspects (Chemische Berichte). Author name indexes which list the author names in alphabetical order are to be found in some journals (Chemische Berichte, Tetrahedron Letters, Journal of the American Chemical Society).

Most of the journals publish annual author indexes, in which the author names are arranged alphabetically. As an additional information, the title of a paper is printed together with that author which appears in the paper primarily (Chemische Berichte, Justus Liebigs Annalen der Chemie, Zhurnal Obschtschei Khimii, Journal of Medicinal Chemistry). Several journals mention in their annual indexes the authors without any context (Journal of Organometallic Chemistry). Besides this, some primary journals publish annual subject indexes, which contain key words with context in alphabetical order (Inorganic Chemistry, Journal of Organic Chemistry) or

index entries under parent subject headings (broader terms) such as ether, alcohol, chromatography etc. (Justus Liebigs Annalen der Chemie, Journal of Organometallic Chemistry). Journals not only publishing papers and short communications but also conference reports and book reviews mention this kind of information in their indexes, too (Angewandte Chemie).

Regarding secondary publications, we observe a similar situation. Secondary journals register the title of each paper and the author names as well. Obviously, the titles are translated frequently into one language. Additional index terms are extracted from the papers or abstracts. As a search means for their readers secondary services produce issue and annual indexes, e.g. author, subject and other special indexes, e.g. formula, heteroatom-in-context, trivial name, KWIC indexes etc. It seems that in many cases the same work is done twice : firstly by primary publications and secondly by secondary services. Here, a cooperation between primary and secondary journals could be useful particularly for economic reasons.

Since indexes are produced more and more by computer composition the following suggestions should be taken into account.

1) Annual author and subject indexes could be produced by secondary services for those journals which are evaluated cover-to-cover by one service. Obviously, French journals will receive the indexes from the French Abstracting and Indexing Service, Russian journals from the Russian service etc.

2) Indexes in English or any other language could be offered to those journals which publish papers in more than one language.

3) Journals, which contain papers pertaining to various scientific fields and therefore are not covered by only one service will be provided with indexes only when the tapes of the different services are compatible.

4) At present no assistance can be given to those journals, which publish also book reviews, conference reports etc.

Considering this, the main problem will be : are Abstracting and Indexing Services capable to supply the primary journals with the required annual indexes in time. This problem may be solved, if :

1) Abstracting and Indexing Services are provided with page proofs

2) abstracting or abstract editing and indexing is performed by secondary services in one step

3) an agreement between primary and secondary journals exists which fixes the vocabulary to be used

4) the indexes of the journals can be handled by computers and the lay-out of the indexes are unique.

Practically no difficulties should be expected with those journals which are published by organizations also producing secondary services. The first steps in this direction were done by the American Chemical Society (ACS). Chemical Abstracts Service (an ACS division) printed the 197I annual author and subject index of the Journal of Physical Chemistry (JPC), which appeared in the last issue of the corresponding annual JPC volume. It should be mentioned that the last December issue of JPC was handled in manuscript form to meet the end of year deadline. In 1972, Chemical Abstracts Service will produce similar indexes for other ACS-journals such as Journal of Medicinal Chemistry, Journal of Organic Chemistry, and Inorganic Chemistry.

In connection with this, another important point should be discussed. Editors of primary publications are aware of the importance of the titles of papers. Since the titles give the readers useful directtions on looking through the issue, titles should be as informative as possible (1). Kuney found in his study that titles served most

(1) J. Chem. Doc. 10 (1970) 3, 147-150

frequently to provide enough information to make a decision, not to read the article (2). In the survey of the future of the chemical documentation in Germany Kresze and Pötzscher state that 20,6 % of the readers use only the title for information (3). Besides this, titles of papers are to be found in the tables of contents and the annual author indexes of primary journals. On the other hand titles of papers are put on tape by Abstracting and Indexing Services for producing indexes and tape services. The more facts are given in the title, the better the indexes or tape services will be. Attention should be paid to the correct usage of narrower and broader terms. For example "IR spectroscopic investigations" is of more meaning than only "spectroscopic investigations", "aliphatic ethers" are preferred to "ethers". On the other hand the broader terms "compositae" should be given in conjunction with the species name, e.g. sun flower (Helianthus annuus) instead of the species name alone. This facilitates the construction of search profiles for SDI-services and improves the precision of such services.

Some primary journals assign keywords additionally to the titles to give their readers further information on the main characteristics of that paper. Although, these keywords characterize the paper those keywords will not play a big role in the considered co-operation between primary and secondary journals as long as there is no agreement upon vocabulary of standardized terms. To achieve this a joint group of editors of primary and secondary journals has to set up binding rules.

Besides the titles, the abstracts or summaries of papers are a substantial service for the readers. Likewise, Abstracting and Indexing Services are interested in good abstracts not only because they facilitate the evaluation of the papers and help reduce the timelag between the receipt of the primary journals and the publication of the abstracting journals but also to prepare meaningful

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(2) J. Chem. Doc. 10 (1970) 3, 150-157

(3) G. Kresze, G. Pötzscher " Die Zukunft der deutschen Chemiedokumentation" Berlin 1971, p. 18

indexes. That means, the abstracts have to contain the most important aspects of a paper. This sounds like a truism. But it isn't. The conditions may be fulfilled fairly easily in some fields, but not in all. In chemistry, e.g., the investigated or prepared compounds should be mentioned either with their names or with their structures in the abstracts. The names have to obey to the IUPAC nomenclature rules. This is an important fact in chemistry, for compounds and compound classes are one of the most essential.

The problems in this field are manifold. Nevertheless, it is hoped that in these problems primary and secondary journals also can help each other and avoid unnecessary duplication.

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In papers with more than one author the name of the author to whom inquiries about the paper should be addressed is marked with an asterisk in the by-line.

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SACHREGISTER

Die Stichworte sind alphabetisch geordnet. Dabei wurden Umlaute so behandelt, als wäre der Umlaut nicht vorhanden. Man findet also beispielsweise „Äther" hinter „Assoziation" und nicht hinter „Aesculin".

(O) Fortschrittsbericht (VB) Versammlungsbericht
(Z) Zuschrift (Rd) Rundschau
(NB) Buchbesprechung

Die in eckigen Klammern stehenden und mit „ E " gekennzeichneten Zitate beziehen sich auf die englische Ausgabe der Angewandten Chemie (Angew. Chem. internat. Edit.). Sie sind nur für Fortschrittsberichte, Zuschriften und Versammlungsberichte angegeben.

6.2. THE INDEXING OF PRIMARY JOURNALS

by Karl F. HEUMANN
Executive Director, FASEB
Member, ICSU AB/Associations of
Primary Publications Editors
Working Group

How is indexing of primary publications done ? In many instances, poorly. The reasons are that it is usually done, 1) hurriedly, 2) at an awkward time in the journal cycle, and 3) by amateurs. I say this from our own experience with four journals.

Some details of recent history of one of the four, The Journal of Nutrition, may be instructive. From my experience, it is quite typical.

When we started to publish this journal (JN) about five years ago, it had been in existence over 30 years. For reasons I could never learn, three volumes were published each year, requiring 3 indexes per year. I noticed that the final volume of 1969 would be number 99; and I convinced the American Institute of Nutrition to change to one volume per year, as henceforth the final digit of the volume number would match that of the year, 100 in 1970, 101 in 1971, 102 in 1972, and so on. My real reason was to cut down on preparing so many indexes (not of course less indexing over all). So now we do one set of indexes per year.

About the time we got this volume index settled, we were informed that our office would be responsible for a decennial collective index. That meant 30 alphabets to run-in, to re-edit,etc. But it, too, is now past and published.

I have gone on at some length about this one part of our experience in order to place before you the question : was it worth doing ?

Let us start with the three volumes per year. I think there is general satisfaction that we have taken the step of cutting down the number of indexes.Users do not have so many alphabets to search; librarians do not have to remember this detail when using the journal and do not have to take extra care in binding; I imagine there may be others in the information world who find this step an improvement. As a final comment : we have received no complaints.

Now let me go into the annual author and subject indexes. I mention author indexes only to dismiss them from this discussion; I cannot imagine a time when an author index would not be prepared somehow for inclusion in this journal, or in any primary journal.

The annual subject index is something different. Cards are now prepared on a fairly regular basis during the year by the copy editor. He uses titles and key words supplied by the author as his sources. As the editing year approaches its end, the difficulties appear. Alphabetization needs to be done on the cards prepared, say, through October, where page numbers are known. Cards are also prepared, without page numbers, for November and December manuscripts. Once the alphabet is complete, the most important step follows : index editing. Here is where the episodic nature of our indexing causes trouble. An expert should do this index editing, in my opinion, if it is to be done well. We cannot afford such a person.

To complete the mechanics . we send to our printer all cards, including those for November and December without page numbers, after December manuscripts. Once we get December page proof of articles, we enter the correct page numbers on galley proofs of author and subject indexes.

This tedious process raises again the question I asked earlier : is it worth it ? Yet whenever I suggest dropping the subject index, authors, editorial board members, and librarians all raise horrified objections.

There are journals, however, that do without subject indexes.

Assuming for the moment that it is useful, why not get someone else to do it ? And of course people are using this method. The Journal of Biochemistry, Clinical Chemistry, and another journal I work on, Federation Proceedings, have all turned to BIOSIS for this kind of help. As this very topic is the substance of another talk this afternoon, I will not elaborate further, but just add that, from my own experience, such a process has been unusually successful.

As a final point related to the Journal of Nutrition, we are keeping cards for another collective index, but I hope we do not print it. It is my opinion that a proper secondary service should be the place to go for subject searches covering a decade.

Can anything else be done ? Well, I have shortened one index (not JN) to about one-quarter of what it was. And by removing only the entry "Rat (s)" from that JN collective index, I dropped sixteen 2-column pages. But these are not solutions.

What Should Be Done ?

If proper studies are not available of primary journal indexing, they should be carried out. Armed with that information, I suggest that the secondary services develop a more detailed position, including costs and schedules on this matter, offering cooperation where suitable. The ICSU AB is obviously the proper body to carry out this suggestion. The editors of primary journals that I know would be an attentive audience for any well-thought-out plan.

I have of course not spoken to this special audience of the actual practice of indexing, but I will close by mentioning a pamphlet on "Indexing Methods and Theory" by Anne G. Cutler. I do not agree with all her recommendations, but she takes up the right questions.

Bertrand Russell once said if you want to be a philosopher, you must make up your mind to be either logical or sane. That is the way I often feel about indexing of primary journals.

6.3 PRIMARY INDEXES AS A BYPRODUCT OF MECHANIZED BIBLIOGRAPHIES

by Joel J. LLOYD
Director of Science Information, AGI
Member, ICSU AB Working Group on
Classification Scheme Geology

In 1967 the American Geological Institute's GEO-REF system began generating the annual index for the Bulletin of the Geological Society of America. The product was a natural fall-out of the bibliographic operation in progress. All of the papers published in the GSA Bulletin, a core-journal in geology, were being indexed and stored on magnetic tape as the monthly issues arrived. Each month's total input, including the Bulletin material, was photocomposed to produce the references, author and subject indexes of the Bibliography and Index of Geology. A computer program was written to separate the GSA Bulletin indexes from the general storage and to collate and photocompose the keywords and tie to the primary papers. The GSA provided us with page proof of the December issue early enough to index and process the contained papers so that they would be included with the January through November material earlier accessed. Photocomposed pages of the year's index were returned to the GSA in time to be delivered to the printer, printed, and bound in to the December issue of the journal. Three weeks lead time was required between delivery of the page proof to GEO-REF and the return of camera-ready copy of the full index to the Society's printer.

In 1968 the software program for the selection of the GSA Bulletin indexes was enlarged and generalized so that any named journal index could be separated from the file. With the general program written, we were able

to offer the service to any serial desiring an English-language index to their publication. At this time we are indexing the American Mineralogist, the Canadian Journal of Earth Sciences, Geoderma, GSA Bulletin, Geotectonics, Atmospheric and Oceanic Physics, Journal of Geophysical Research, Journal of Sedimentary Petrology, Marine Geology, Physics of the Solid Earth, Review of Geophysics and Space Physics, and Tectonophysics.

In addition to the yearly indexes, we have prepared a ten-year cumulative volume for the GSA Bulletin, and a three-volume cumulative of Tectonophysics. Another service to the primary journals that we are now discussing with Elsevier, is the presentation in three Elsevier journals of current title listings in the area related to the publication's interest, published in the preceding month around the world.

S E S S I O N 7 :

MARKETING OF SECONDARY INFORMATION SERVICES

Chairman : D.B. BAKER

7.1. MARKETING PROBLEMS AND ISSUES

BACKGROUND PAPER

Prepared by Dale B. BAKER
Director, CAS

Conference Session Topic :

The relationships of Abstracting and Indexing Services with Information Centers :

1. Goals and Purposes of Conference Session

   A. To identify the growing, critical problems and issues in working with information centers in worldwide dissemination of the scientific and technical information.

   B. To discuss and summarize these problems with the view of achieving some understanding of the impact of information centers on the abstracting and indexing services ability to effectively and continuously serve scientists and engineers as well as to maintain economic viability.

   C. To consider developing a series of desiderata or guidelines in working relationships between the abstracting and Indexing services and the information centers which will help to strengthen the functions and improve the performance of the institutional components of the information transfer chain.

2. Definition of Information Center

   An information center is a formally structured organization unit specifically established for the purpose of acquiring, selecting, storing, retrieving, analyzing, evaluating, or synthesizing a body of information in a defined field, fields, or specific mission with the intent of compiling, digesting, repackaging and/or disseminating the information in a timely and useful form to a community of users.

The above general definition is one of many that can be used to describe information centers. Information center representatives themselves do not agree on a common definition insofar as there are many different types of information centers and their operations and functions can vary widely, depending upon the objectives and purposes of the supporting organizations responsible.

Some other names which have been used to describe the activities of information centers are as follows :

1. Information Analysis Center
2. Information Dissemination Center
3. Information Retailing Center
4. Information Distribution Center
5. Information Reprocessing Center
6. Information Processing Center
7. Information Output Center
8. Information Reindexing Center
9. Information Resorting Center
10. Information Interdisciplinary Center
11. Information Operating Center
12. Community Information Center
13. Specialized Information Center
14. Data Center
15. Regional Information Center
16. Interconnected Sectoral Center

3. Further Background Points on these Relationships

A. In the full UNISIST Study Report (No. 4, 1971) Figure 1 (page 26) depicts the flow of scientific and technical information from authors → publishers (primary sources) → abstracting and indexing services (secondary services) including libraries and information centers → tertiary services → users. Information centers are discussed in more detail on page 44 of this full UNISIST Report where it states that "though no reliable figures exist, it may be reckoned that information centres are now well within the range of a hundred thousand, for all areas of knowledge, excluding libraries, archives, and data centers". It is recognized in this report that the centers using automatic techniques in the selective dissemination of information is very limited at present, but growing in importance.

B. In the UNISIST Synopsis Report (1971), Program Object II (page 38) relates to the need to improve the processing flow through the accessing services to the library and information centers. Furthermore, Recommendation 9. Information Analysis Centers states that "the development of specialized information centres serving the needs of specific user groups should be recognized as a necessary complement of a world network of basic access services as envisioned in Recommendation 8 (Strengthening of Basic Access Services)". Indeed, the UNISIST Committee considered the need for development of information centers as even greater than they did the question of accessibility.

C. The advantages of the selective dissemination of information through information centers are identified in a recent paper in Info. Storage and Retrieval 8, No. 2, 57-75 (1972) by Martha Williams where the following are considered to be important :

1. Coverage
2. Thoroughness of search
3. Consistency of search
4. Interdisciplinariness
5. High recall
6. Cost-effectiveness
7. Speed and regularity
8. Timeliness
9. Multiplicity of data bases
10. Automatic preparation of files in standard format
11. Cost of data base preparation and operation of an SDI vs. subscriptions

4. Some Questions

A. Are the information centers a help or a hindrance to abstracting and indexing services ?

B. What is the role of associations of information centers (EUSIDIC, ASIDIC, etc.) in building an international system ?

C. What per cent of the user community is changing to the new forms of services provided by information centers ?

D. How can we develop guidelines to improve working relationships with these centers ?

These and other broad questions should be kept in mind as the speakers discuss the problems and issues of what is going on in the different parts of the world.

7.2. DIALOGUE BETWEEN TAPE SUPPLIERS AND INFORMATION DISSEMINATION CENTERS

by Magdeleine MOUREAU
Head, IFP Documentation Center

Information dissemination centers have three possibilities in their relations with the services issuing the outside bibliographic sources they receive.

a) They can maintain a dialogue with tape suppliers so that the system will be as suitable as possible for user needs.

b) They can constantly improve their original search software so as to retrieve recorded information with all its nuances.

c) They can develop strategies for searching bibliographic files so as to attain both maximum precision and recall rates.

We will take up only the first of these possibilities : dialogue with tape suppliers.

This dialogue is carried on in various ways, depending on the importance of the supplier -- that is, whether it analyzes more or less than 100,000 references per year. A service that analyzes less than 100,000 references is generally a highly specialized one intended for a relatively restricted category of users.

Let us take the example of the system worked out by CAIS (Central Abstracting and Indexing Service) of the American Petroleum Institute. It is the result of a constant dialogue between CAIS and its users. It is an extremely rare example of a tailor-made bibliographic service.

The oil companies were the promoters. Rather than each developing huge documentation services composed mainly of teams of indexers, they asked API to create a cooperative service that would supply them with extended facilities while reducing the in-service efforts that were causing each of them to get in over its head. The result was a service which annually publishes 15,000 literature abstracts in refining and petrochemistry and as many patent abstracts in the same field. All these are indexed by an organized vocabulary, with role indicators and links being used as syntactic operators.

Every year two meetings are organized for users. Discussions are held on all problems having to do with using the system, and a plenary meeting decides its future orientation. Each policy decision is prepared from a report by a Task Force Group made up of representatives from the users.

Relations with this type of service are highly personalized, and all material problems (such as delivery, bookkeeping, etc.) are worked out directly by a simple telephone call to the person involved.

The problem is quite different with big tape suppliers, i.e. those handling more than 100,000 references. It is difficult for an ordinary user to converse interactively with them concerning how the system is conceived. Any user of a system covering such a vast field obviously finds it difficult to be truly representative of a wide range of users. Therefore, users have to ally themselves in groups so as to achieve a position enabling them to become a worthwhile partner in dialogue.

This is why European information dissemination centers have decided to create their own association, EUSIDIC (European Association of Scientific Information Dissemination Centers). EUSIDIC groups the leading dissemination centers in the Netherlands, Denmark, Germany, Great Britain, Finland, Sweden, France, etc. EUSIDIC operates through various working groups and task forces concentrating on different technical, economic and political problems. These include WG-A/ EUSIDIC Tape Format, WG-B/Data Element Standardization, WG-C/Practical Cooperation, WG-D/Retro-Searches, WG-E/Coverage and Overlap of Data Bases, WG-F/Legal and Economic Aspects, and WG-G/Market Surveys.

For instance, Chemical Abstracts Services consulted FUSIDIC when it was working out its new SDF (Standard Distribution Format). Even though technical problems can be discussed rather effectively in this manner, it is still difficult to cope with small material problems within short time spans because the person in charge is not known and so cannot be dealt with directly.

7.3. THE RELATIONSHIP OF ABSTRACTING AND INDEXING SERVICES WITH INFORMATION CENTRES

by D.H. BARLOW
Director, INSPEC

In trying to define the relationship between Abstracting and Indexing Services and Information Centres, the objective set by the chairman was to describe what was happening in Europe with Information Centres and to try and define the problems that were arising in generating the correct relationships between Abstracting and Indexing Services and Information Centres.

In this brief were listed many points where confusion or lack of a consistent practice occurred. One might consider many of these points of difficulty as signs of an emerging industry. As the Information Centres become more and more an accepted part of life, these items will be resolved. A short list will give you an idea of some of the problems involved.

The areas in which dialogues are occuring between Abstracting and Indexing Services and the Information Centres include :

Pricing policies.
Leasing arrangements.
Royalties.

Merging Rights.

Quality of searches performed.

Confidence of the centre in handling Abstracting and Indexing Services tapes.

Marketing and promotion.

Finance.

Multiple networking and the evaluation of data bases without knowledge of the producer.

These are the problems, and are general throughout the world. So in planning this session with Bill Woods we decided that I would try and review the Information Centres and their relationships in broad perspective. and touch on the general problems, which Bill Woods would develop in great depth. So lets start by trying to give you a brief over-view of what is happening in Europe.

The European Scene

In all, one can discern three if not four threads in a very confused picture. How the final arrangement of centres within Europe will look is open to question but the main threads as they appear to me at the moment are the following :

1. A general retrenchment and/or consolidation among existing centres caused by growing economic pressure.

2. The growth of nationally based centres in specific disciplines.

3. A trans-national growth within a continental region.

4. The growth of truly international systems.

A very cursory glance around the centres in Europe will show some examples of these trends. In Sweden the Swedish Royal Institution of Technology is currently running some 14 data bases.

In Denmark and Holland cross-reference services are being run in which one country will operate the Engineering Index data base and sell into the other, while the other operates the INSPEC data base and sells into its opposite number.

In Germany a reorganisation of the information services onto a national basis and the growth of specialist centres in mechanical engineering and electronics are two new trends.

In France a new centre, ELDOC, is under study as possible centre for electrical and electronics information services. Also too, a national Chemistry information centre is being set up.

In Belgium tapes are being set up to provide national services based on the Royal Library.

In Austria the world patent index centre is about to be organised.

In Denmark a contribution towards international information retrieval has been the development of the Danish Teletext System.

Already this list is becoming confusing and there are other centres too numerous to mention. Even this short list gives some concept of what is happening in Europe, and all these centres are being influenced by one or the other of the four points that I mentioned earlier.

Of these, the main one is that of retrenchment, the effect of economics on the centres' operation. In the history of any innovation the pattern is the same. The original scientific discovery is hailed as a great breakthrough and everybody sees it in technological terms as the answer to the problem that is besetting the individual or organisation. Work is done and systems set up; some survive, and those that survive then

are forced to justify themselves against the economic benefit that they offer. One can see this pattern in every scientific develcpment and the information field is no exception. The scientific innovation of selective dissemination was hailed as the great breakthrough. The development phase came and this paralelled the mechanisation of many of the abstracting and indexing services. Then followed the introduction of numerous experimental services and gradually as these went into full production operations, the economic problems appeared based on two factors .

1. Market and habits do not change overnight.

2. Economics are as valid in the information field as in any other scientific area.

There is ample evidence to support this. A recent OECD Study has been performed on a number of centres looking at the fixed and variable costs in running selective dissemination services and IR services. This study shows that not one of the five surveyed was charging real economic prices for the services that they were running. Often the price of the services offered was as low as 1/3 of the actual cost.

Thus one can see a period of retrenchment ahead due to the fact

1. Subscribers are hard to obtain.

2. The cost benefits of paying $ 100 to $ 150 per year for an SDI service has not yet been readily accepted by management.

In addition the economic pattern of SDI as a production operation is not one which provides the same incentive as does a mass production or publication type operation. Each SDI service is individually produced and obviously the margin between cost and income on each is small. Within INSPEC this realisation has come through clearly and at present the SDI market ticks over while concentration is placed on standard profiles

as the means of providing the advantages of selective dissemination without the excessive costs of the personalised SDI service.

A lean Period

Based on this period of enforced retrenchment the information centres are thus having to rely on subsidies and this in itself raises a main problem between the centres and Abstracting and Indexing services. The Abstracting and Indexing services themselves are being forced more and more to become fully self-supporting. The level of federal support for the operation of such services, now that the developmental phase of mechanising the services is over, is reducing. Consequently the Abstracting and Indexing services are looking carefully at the use that is being made of tapes by the information centres, particularly if they are being used in a subsidised environment.

The successful exploitation of information from tape services could in itself reflect onto the printed publications produced by the Abstracting and Indexing services on which the main economics of their operations are currently based. There will obviously be in the future a continuing dialogue on the economic factors of supplying and disseminating information and on deciding the correct return that each should enjoy.

Other Problem

While the economics are a problem to the information centres, other potential difficulties can be seen on the horizon.

One of these is the growth factor. The brief survey given earlier showed a multiplicity of centres within Europe. One can ask the question : will two centres specialising in information in the electrical and electronics field operating one in France and one in Germany, both members of a Common Market Community be able to sustain sufficient traffic for each to be self-supporting ? Looking further into the future, the Common Market

programme includes ideas of an on-line network and the development of Common Market information services in agricultural and possibly medicine. These are new factors with which the information centres will have to contend.

Finally, on the trans-national scale we have systems such as that operated by ESRO using the RECON Interrogation programme with centralised computers at Darmstadt and terminals in Holland, Sweden, Germany, France and the United Kingdom. There again multiple data bases are being mounted on the ESRO system and the beginnings of a trans-national system are emerging. How does this fit with the role of the national information centres ?

One can argue either way according to ones viewpoint that the national centres are but in extension of the trans-national network or that they are likely to be replaced. At present the picture is unclear and the final pattern is difficult to visualise.

Other Problems

The other problems that are likely to be faced by the Information Centres cover prices, quality, promotion, royalties, formats and price levels, and in all these there is a possible role for ICSU AB to play.

Prices

What are likely to be the royalty arrangements for a trans-national network ? What return should a data base supplier who has offered his tape to a trans-national network expect ? This is certainly a problem to which ICSU AB could address itself.

Quality

As producers of data bases the Abstracting and Indexing services have a very real interest in how the information centres to which

they supply their data bases are providing services. Can they be assured that the services are being conducted in a professional manner and not damaging the images of the suppliers through sloppy operation or through lack of complete knowledge of the facilities imbedded in the data base ? Here again the role of standards for information centres is a problem for consideration by the Abstracting and Indexing services.

Promotion

Obviously it is in the interests of both the Abstracting and Indexing services and the centres to promote the information facilities that each can offer as widely as possible. There are probably areas where joint promotion between the centres and the suppliers can be more effectively done. One can be perturbed by the initial tone of some of the Tape Users Associations meetings which such terms as confrontation, pressure groups etc. have been used in an attempt to get the producers to conform to what the users feel is required. This situation I hasten to say has improved but was an unfortunate way to try and foster relations.

Price Levels

This in the past has been a bone of contention between suppliers and users in that the prices of tapes are often said to be far too high. Analysis shows the folly of such a statement. Taking for example an INSPEC tape with 150,000 items at a total cost of £ 2,500 one can see that the price per item including abstract and indexing works out at £.017 per item. The fallacy of the argument of high cost is to consider the cost of the tape as the only production cost involved. What is forgotten is the value of the information contained and the intellectual work performed on that information, together with the contribution that such products must make to the general cost of the whole

operation of an Abstracting and Indexing service. If one were endeavouring to input the same information oneself, it is unlikely if not impossible to generate the material at such level. One can thus feel that costs of the data base should be one of the least of the worries of information centres.

Summing Up

From this short talk I tried to paint the picture of the information centres' position as I see it. They are in a difficult financial status, questions can be asked whether they are proving their worth. Certainly on a strictly cost -benefit the answer looks unlikely but as a means of creating an awareness of the information resources available to the scientist and engineer they have a big role to play. They can serve as the front-line link between Abstracting and Indexing services and the user and provide their extra impetus to gain acceptance of the services.

Perhaps, and this is the thought that I would like to leave with the audience, is that perhaps the Abstracting and Indexing services should try and come closer to the centres and operate joint co-operative ventures. In this way the risk is shared and many of the problems given above automatically solve themselves. One can project one further idea and that is to try and define what ICSU AB's role in such a relationship might be. Just as the Publishers Association looks after the individual Publisher's interests in copyright, and protects their interests generally, should not ICSU AB do the same in relation to the information centres ? One could even perhaps facetiously suggest the idea of ICSU AB approved centres where a seal of approval has been granted for the professional and efficient way in which the centres are run. On that controversial note I will close.

7.4. MARKET FOR INFORMATION

by Bill M. WOODS
Executive Director, Engineering Index Inc

First I would like to comment briefly on views presented by previous speakers on problems and activities of abstracting and indexing services and their relationships with information centers in Europe and North America. Are these problems and activities so dissimilar ? Although they may take different forms, on analysis, they may show more similarity than not. I believe that we cannot really separate the world geographically, and I detect problems and activities common to Europe and North America.

My views on problems and activities of abstracting and indexing services and information centers in North America come from my own experience, directly from my colleagues, from educated guesses, and from the grapevine. Unfortunately I have no original survey from which to draw. If I seem to misrepresent the information situation in the United States and the Western Hemisphere my colleagues here today will have to correct me. We may, of course, view and interpret the situation quite differently. I'll not call their views wrong, nor do I want to be called wrong.

Perhaps I can count larger numbers of data bases in the United States. Customers of U.S. services are well scattered throughout the globe. Forty per cent of Engineering Index COMPENDEX customers, for instance, live and work outside of the country.

Users of data base products

Who are, will be, or might be, the organizations using machine-readable data bases ? Three or four years ago a figure of 200 world-wide organizations or data centers users was quoted. Today, about 50 are probably worth the marketing efforts. Most of these users are information dissemination centers having a variety of operations and functions.

The information centers

Several types of information centers exist side by side in the United States classified by combinations of purposes, objectives, organizational structure, user groups and funding. These centers are found in national government agencies, organizations subsidized by the government, universities, and for-profit companies. In the United States there is no one single government agency that serves as the national information service. But in the Western Hemisphere, Canada is a good example of a country that has developed a national scientific and technological information system.

Of nongovernment agencies with government subsidy, we find in the United States information centers at several universities, among them the University of Georgia, Lehigh, University of Pittsburgh, the University of California at Los Angeles (UCLA), Ohio State University. Some university-based information centers such as the computer-based information system supported by the National Science Foundation (CBIS/NSF) provide campus services. Others provide information exchange networks between industry and campus, and with agencies like National Aeronautic and Space Administration (NASA) ; some are what remains from the now defunct State Technical Services Program. There are several information networks including Aerospace Research Applications Center (ARAC), New England Research Applications Center (NERAC), at University of Connecticut ; Western Research Applications Center (WESRAC), at the University of Southern California ; The Air Force Tactical Air Command (TAC) ; the Knowledge Availability Systems Center (KASC) at the University of Pittsburgh ; and the industrial complex at Research Triangle Park in North Carolina.

At the present time information centers at universities are supported by government subsidies. But there are plans underway to initiate information centers at universities supported by the campus and industry, to serve the university itself, industry, or both.

Xerox Corporation and 3i Company/Information Interscience Incorporated are only two examples of organizations in the U.S. who offer information products within the structure of profit-making organizations. Such organizations may use their own data base, external data bases, or both.

The market for information

Today in the United States there is an existing but limited market for information products. The general state of this market is precarious and marginal at best, with open, very active competition. Existing information centers are presently kept alive with subsidies in the hope that soon they will become self-supporting. Perhaps information centers receive too much subsidy to encourage active, dynamic and healthy growth. Existence of virgin areas for expansion is unknown, unrecognized, and unexplored. There are still many unsolved problems in marketing information products. There is a question as to whether real wisdom has been given to establishing proper price tags for information. Where does the need for information exist, and for whom ? Will scientists and engineers use information dissemination centers ? How much will they pay for the search services offered ? These and other problems have not been adequately explored.

Secondary services

In many instances the secondary information services provide search services themselves in direct competition with information dissemination centers. In some cases it is not completely known whether such services are provided directly for an organization's own in-house use only, or if searches also are provided to the information dissemination centers for resale.

Engineering Index, Inc. never did provide a search service for its published indexes and abstracts to its engineering information base, and its management sees no reason, at the present time, to provide search services for its machine-readable information base. Engineering Index believes that a search service should be the function of a separate organization. Publishers don't run libraries. However, some secondary services are now considering experimental search programs to gain experience with use of their own tapes and to discover and correct problems that may later arise when their tapes are searched by others.

The underlying concern of abstracting and indexing services is the fear that in the future the income from tape sales may pose a real threat to income from paper products. Abstracting and indexing services are alert to this threat and are prepared to organize for as complete control of income as possible. Differences in competence of information centers vary greatly, particularly in their expertise in constructing search profiles. Lack of expertise in constructing search profiles can have an adverse affect on a good data base.

Most suppliers of information data bases require that information dissemination centers subscribe to their printed products as well as the computer tapes. Income from the computer tape data base is a small percentage of the income of many abstracting and indexing services. At Engineering Index, income form its machine-readable data base, COMPENDEX, was 12.2 % in 1970, 11 % in 1971, and will be 15.4 % in 1972. Projections for 1973 are slightly lower because of projected price increase in printed services. Income from royalty as a use fee is as yet a pittance, and real confusion exists in this area.

Contracts and agreements for tapes

Contracts for lease and for license, are the two principal kinds of contracts or agreements for use of tapes supplied by originators of the data base. Tapes may be leased for in-house use within a company, university or government agency. License is offered for resale at stated prices to a selective dissemination of information (SDI) or current awareness service, or for a retrospective search mode for offering to a third party.

Contracts are also available for both in-house and resale use.

Royalty/use fee

Several methods are used to establish charges on royalty/use. Charges may be based on: so much (¢) per hit produced in profile search ; a percentage of total income produced from search of tape ; a charge based on the profile sold by the information center ; or a sliding usage fee. (To be discussed later).

Royalty/use fees and charges have been subjected to much discussion, few conclusions, and a variety of experiences. There are many mini experts here, with frequent changes in rules and reasons for changes. Demands or requests for consistency are met by a lack of consistency -- call it standardization if you will -- from both the abstracting and indexing service and the information centers.

Asidic

The Association of Scientific Information Dissemination Centers (ASIDIC) was founded in 1969 as an association for considering problems of chemical information systems. ASIDIC full members are information dissemination organizations or centers having computer-based operations, and offering either SDI searches on two or more data bases with a minimum of 100 profiles processed on a continuing basis, or retrospective searches performed on a demand basis against two or more distinct data bases with a minimum number of 1000 questions processed within a one-year period. ASIDIC associate members consist of information dissemination organizations or centers which do not meet the criteria for full membership as well and other organizations having an interest in the activities of ASIDIC.

Up until recently ASIDIC emphasized efforts at standardization. Some confusion in standarization attempts has taken place as the information centers have moved from their initial efforts into the real world of supply and need.

At the ASIDIC closed meeting held last September 26-28, 1971 in Arlington Heights, Illinois, discussions were held on a wide range of topics related to interactions between data-base suppliers and information processing centers. The Information Dissemination Centers aired gripes, and vague recommendations were given for prices, quality control, and delivery of data bases, as well as airing out of problems of data rights and copyright. ASIDIC distributed a Summary of the Proceedings of its September 1971 meetings for information and reaction comments and reply to each of the some 30 members of the National Federation of Science Abstracting and Indexing Services (NFSAIS), and to other tape suppliers.

At the meeting of ASIDIC, held in Atlanta on March 20, 1972, NFSAIS commended ASIDIC for the attention given to the range of problems concerned with processing machine-readable data bases. Although this was not a position paper, a mechanism was sought for discussion and resolution of problems and possibility of establishing guidelines.

Pricing, Rights, Quality and Backup

I'd like to make it clear that the reactions to the ASIDIC recommendations presented here are mine alone. I believe that a fixed-base pricing structure for data bases is difficult to establish. Restraint of trade/price fixing are concerns in the United States. Members of NFSAIS and other suppliers of data bases should be free to charge according to their cost assignment practices, differing costs, identification of different profit centers. ASIDIC proposed a sliding usage fee which may be used on a "profile" or search question, the precise definition of which for accounting purposes would have to be defined.

Outright sale of data bases is not acceptable because at the present time the copyright law is vague and does not present a clear statement on copyright protection of information contained on machine-readable data bases.

Quality control is of equal concern to the data-base supplier and to the information processing center. Recommendations have been made to include in agreements a quality-control clause which should include a penalty clause for delay of delivery or failure of tapes, and a right-to-cancel clause, also a three-month lead time clause in case of a change of tape or data specification.

Proper feedback between supplier and information center is needed to assure a quality product. Both center and supplier can be affected adversely without proper interchange of information. There are many examples.

The need exists for obtaining backup tapes or tape replacements. The responsibility for tape replacements lies with the data base supplier and should remain there in order to make the supplier more sensitive to problems caused by his distribution of bad tapes.

Educational and marketing resources

Information centers require printed and audiovisual materials to describe their services. Most of the abstracting and indexing services supply printed materials of their own bases. Current educational efforts have been developed by NFSAIS members including seminars such as the one NFSAIS developed on "Utilization of Computer Based Services by Libraries and Information Retrieval

Systems". The "ASIDIC Survey of Information Center Services", (published by IIT Research Institute Chicago, Illinois 60616, June 1972, $7.50) is a very helpful survey listing data bases used either for current awareness of retrospective searches, subdivided as being either publicly available, internally-generated, of subset data bases. The survey resulted from a need identified by the ASIDIC Cooperative Data Managements Committee (CDMC). CDMC was formed "to study ways, means and feasibility of sharing experiences, resources, processing activities, etc., between ASIDIC information centers (and possibly others) in order to standardize, simplify, and economize information center activities and to establish an information network".

The area of information is fluid, dynamic and challenging. Machine-readable data bases are here to stay. Some - but not all - of the information dissemination centers are here to stay. The best will survive.

It is an interesting time to be in the abstracting and indexing business.

7.5. THE ABSTRACTING AND INDEXING SERVICES RELATIONSHIP WITH INFORMATION (DISSEMINATION CENTERS)

by J.R. SMITH
Director for Research and Development,
BIOSIS

In opening the meeting, the Chairman, Dale Baker, invited Madame Magdeleine Moureau to present the point of view of the information centers. Madame Moureau expressed the view that information centers could exert an influence on tape suppliers in three ways : (1) they could influence the quality of the material on the tapes, (2) they could influence the manner of storage, and (3) they could influence the way in which questions are formulated. She observed that a distinction must be drawn between information centers using small files with sophisticated output for few users which were different from information centers using large files providing less sophisticated output for many users. She felt that information centers found it easier to impact on producers of small files and that there was difficulty in entering into discussions with large tape suppliers. It was for this reason that EUSIDIC, an association of European information centers, had been established.

EUSIDIC had established working groups on (1) common policy, (2) tape format, (3) economics, (4) retrospective searches, (5) evaluation of different systems. The association held two meetings a year, one of which was open and the other closed. One of the main qualifications for membership was that an information center serviced not less than 100 profiles a year. Madame Moureau particularly referred to the problem associated with mailing delays to Europe of tapes produced in the United States.

Derek Barlow, speaking of the situation in Europe, considered that the kind of problems between tape suppliers and information centers were those to be expected in an emerging industry. He thought that the gap between producers and users was quite small and covered essentially pricing, leasing, royalties and merging rights, quality of service produced, marketing, financing and multiple networking. There was in the information centers a trend towards consolidation caused by economic constraints. He was concerned about the growth of national centers in specific disciplines and questioned whether there would be too many of these. He referred to the growth in trans-national activities and cited the European Economic Community and the European Space Research Organization. Mr. Barlow also mentioned international activities such as those of INIS and AGRIS. Many of the problems he thought related to the use in a number of small countries of the same data base. The economic problems were similar to those of any innovative industry. Markets and habits do not change overnight. A recent OECD study analyzing the costs of services and the income therefrom had indicated that the costs were greater than the income. The abstracting and indexing services in general are required to be financially self-supporting. The hazard of selling tapes at a loss to subsidize centers was increased by the possibility of loss of publication sales on which most suppliers depended for their existence. It seemed unlikely that several centers in the same field, no more than a few kilometers apart, could be financially self-supporting in Europe was sufficiently compact that the possibility of on-line networks seemed a feasible future step. In an on-line situation, coupled with the possibility of trans-national centers, the establishment of royalties would not be easy to determine. Another problem faced by the suppliers was the question of the quality of the dissemination centers, upon which the reputation of the tape suppliers depended. EUSIDIC had, in a recent conference, used strong terms about relationships with tape suppliers, and the information centers, from time to time, suggested that price levels were too high. However, all tape suppliers recognized that the prices, at present being charged, were purely nominal and bore no relation to the true cost incurred. Mr. Barlow made a plea that the tape suppliers work closer with information centers and wondered whether there would be advantage in the preparation of guidelines which could be used to identify ICSU AB approved centers.

In the discussion which followed, a point was made that SDI services may not be as complete an answer to the information problems of scientists as had been thought, but that up until now no satisfactory alternatives had been suggested. In response, it was pointed out that, to some extent, SDI was defective because the mechanized equipment currently available was not adequate for the purpose of operating efficient services. It was suggested that the deficiencies of SDI could be related to the lack of dialogue between the user and the system and the possibilities of on-line SDI systems were discussed. This question again drew attention to the difficulties of establishing royalties for on-line services. Further, the ability of information centers to use the tapes efficiently had been brought into question. If information centers did not have this competence, how could individuals be expected to do better working with an on-line system. In a discussion of the economic aspects, an observation was made that the possibilities of income accruing to the primary publications should not be overlooked.

Mr. Bill Woods observed that the situation in the United States was very little different from the situation in Europe. However, since the majority of tapes were produced in the United States, the problems were perhaps in closer focus. It had been averred that in the world there were no more than 200 organizations capable of becoming information dissemination centers. If this were so, it had to be accepted that the potential market for the tape suppliers was small. At present there was a multiplicity of centers using tape services, but for a number of these the government subsidies were coming to an end and it was questionable as to how many would survive. One incongruity in information centers, in the United States, was that prices for services varied from center to center. There was some discussion as to whether tape suppliers should also provide services from their tapes. It appeared that, in general, the prime reason for doing this was to enable the generating service to monitor the value of the tapes supplied. This drew attention to the possibility of the suppliers withholding tapes from centers who did not demonstrate their competence in handling these tapes to provide services. It was re-emphasized that the concern of most tape suppliers was that the services derived from the tapes were in direct competition with their publications. However, income from the tapes and tape services was growing slowly. It was generally the practice of tape suppliers to lease or license their tapes at a basic fee with an additional royalty or use fee and the question was raised as to whether usage time on the

machine would not be a better criterion. Mr. Woods referred to the American Association of Information Disseminating Centers (ASIDIC) which had been formed in 1969 and which now, because of the fall-off in subsidies, was much concerned with marketing. In a closed meeting in 1971, ASIDIC had produced a report on their relations with tape suppliers and this report had been submitted to NFSAIS. Since not all tape suppliers operated in the same way, a community response had been difficult. However, following some discussion at a meeting in March 1972, a committee had been formed to establish guidelines as to the manner in which tape suppliers and information dissemination centers could work together. The ASIDIC report dealt with five major issues : (1) the pricing structure for data bases and the usage fee, (2) data rights and copyrights, (3) quality control, (4) data base backup, and (5) education and marketing resources. ASIDIC had also prepared an extremely valuable draft survey of information center services under the following categories : (1) data bases used for SDI and retrospective searches, (2) numerical statistics, (3) search and output capabilities.

In conclusion Mr. Woods expressed the view that this was a fluid and dynamic area in which all were learning by experience and that patience and tolerance were required.

In the discussion which followed, emphasis was given to the possibility that ICSU AB establish some accreditation of information dissemination centers. It was, in general, felt that it would be difficult to standardize these criteria since it could not be assumed that an information center which had competence in one scientific discipline would have equal competence in all scientific disciplines. It was further urged that the time delay introduced by such an evaluation would help neither the information centers nor the tape suppliers.

GLOSSARY OF ACRONYMS

AAA	:	ASTRONOMY AND ASTROPHYSIC ABSTRACTS
AGI	:	AMERICAN GEOLOGICAL INSTITUTE
AGRIS	:	AGRICULTURAL SCIENCES AND TECHNOLOGY (FAO)
AIP	:	AMERICAN INSTITUTE OF PHYSICS
AWRA	:	AMERICAN WATER RESOURCES ASSOCIATIONS
BIOSIS	:	BIOSCIENCES INFORMATION SERVICE OF BIOLOGICAL ABSTRACTS
BRGM	:	BUREAU DE RECHERCHES GEOLOGIQUES ET MINIERES
B.S.	:	BULLETIN SIGNALETIQUE du CNRS
BST	:	BIBLIOGRAPHIE DES SCIENCES DE LA TERRE
CAB	:	COMMONWEALTH AGRICULTURAL BUREAUX
CAS	:	CHEMICAL ABSTRACTS SERVICE
CBE	:	COUNCIL OF BIOLOGY EDITORS
CIDB		CHEMIE INFORMATION UND DOKUMENTATION BERLIN
CNRS	:	COMITE NATIONAL A LA RECHERCHE SCIENTIFIQUE
CSIRO	:	COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH
E.I.	:	ENGINEERING INDEX INC.
EUSIDIC	:	EUROPEAN ASSOCIATION OF SCIENTIFIC INFORMATION DISSEMINATION CENTRES
FAO	:	FOOD AND AGRICULTURAL ORGANIZATION
FID	:	FEDERATION INTERNATIONALE DE DOCUMENTATION
ICSU AB	:	INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS ABSTRACTING BOARD
IFLA	:	INTERNATIONAL FEDERATION OF LIBRARY ASSOCIATIONS
IFP	:	INSTITUT FRANCAIS DU PETROLE

INSPEC	:	INFORMATION SERVICES FOR THE PHYSICS AND ENGINEERING COMMUNITIES
ISDS	:	INTERNATIONAL SERIALS DATA SYSTEM
ISO	:	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
IUCr	:	INTERNATIONAL UNION OF CRYSTALLOGRAPHY
IUGS	:	INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
IUPAP	:	INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS
NFSAIS	:	NATIONAL FEDERATION OF SCIENCE ABSTRACTING AND INDEXING SERVICES
OECD	:	ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT
STM	:	INTERNATIONAL GROUP OF SCIENTIFIC, TECHNICAL AND MEDICAL PUBLISHERS
UNISIST	:	UNISIST
Z.M.	:	ZENTRALBLATT FUR MATHEMATIK
WG	:	WORKING GROUP