8 Especially in the Fächerkatalog (9) we found many socalled disciplines like "oscillators", "digital computers", "elasticity", etc., which are of course either objects or properties but no subject fields.

9 This was done in (7), p. 175.

10 They are listed in (2) and (3).

11 See (9); it contains about 2270 fields ordered in 88 larger groups. It contains only those fields being taught in German universities in the recent years. Right now a second edition is being prepared.

12 Actually since 1970 but then for the purpose of a total revision of the UDC; see (11) and (12) (a slight modification has been introduced in (11)).

13 See (4) – a first linguistic evaluation of the collection.

14 In (4) a larger table shows the frequencies of these combinations.

15 We should like to refer to Wolfgang Ratkes (1571–1635) "Entwerfung einer All-Unterweisung" where he suggested e. g. the following translations: jurisprudentia – Rechtslehr, Medicina – Arzneilehr, Philosophia – Vernumftlehr, etc. See also (7), p. 305.

16 Thus in (10) p. 1138.

17 See e. g. M. Wolff–Terroine's one as projected in (13).

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REPORTS AND COMMUNICATIONS

Third International Study Conference on Classification Research

I. A Brief Note

The Third International Study Conference on Classification Research was held in Bombay, India, from 6–11 January 1975. The Conference organised by FID/CR in collaboration with FID/LD and FID/TM + OM, and cosponsored by the UNESCO, the Indian National Scientific Documentation Centre (New Delhi) and the Sarada Ranganathan Endowment for Library Science (Bangalore), was hosted by the Bhabha Atomic Research Centre, Trombay, Bombay. The theme of the Conference was "Ordering Systems *for* Global Information Networks". Fifty-seven papers were received on the following specific topics of the Conference.

I Linguistic research in classification and information processing (7 papers)

Linguistic problems in natural language interactive inquiry systems (3 papers)

Input-output problems in multilingual information networks (1 paper)

Languages for control and access as related to both data entry and inquiry (1 paper)

Semantic and conceptual foundations of classification (2 papers)

II Recent developments in the theory of classification and the role of classification and other switching mechanisms in global information networks (45 papers)

Research in the theory of classification and representation of subjects in information systems (17 papers)

Research in mechanised classification and indexing (9 papers)

Use of classification in computer-based information systems (4 papers)

Development of broad ordering systems such as the Subject-field Reference Code (SRC) for use in global information networks such as UNISIST (2 papers)

Formulation of systems of subject headings, thesauri, and similar subject structuring tools, with potential application of these systems in global information networks (13 papers)

III Impact of modern technology of information systems (5 papers)

Problems and solutions relating to accessibility to distributed knowledge for fast action-oriented information use (1 paper)

Ordering problems in decision situations at global distance from potential information sources (4 papers)

Pre-prints of the papers were distributed to the participants in advance of the Conference. The volume of papers and proceedings of the Conference is expected to be published in 1976.

One hundred and twenty one (121) persons from 18 countries participated in the Conference: foreign contributors 43; foreign observers 8; Indian contributors 12; Indian observers 58.

The main conclusions and recommendations of the Conference are given in the annexure.

In the unavoidable absence of Mr Rasmus Molgard-Hansen, Honorary Chairman, FID/CR, and President-Designate of the Conference, Dr. Hélmut Arntz, President of FID, was President of the Conference and delivered the Presidential Address.

Dr. R. Ramanna, Director, Bhabha Atomic Research Centre, Bombay, inaugurated the Conference. Dr. A. Ramachandran, Secretary, Department of Science and Technology, Government of India, was Chief Guest at the inaugural session and spoke on the occasion.

Prof. Eric de Grolier, Secretary General, Institut National des Techniques de la Documentation, Conservatoire National des Arts et Metiers, Paris, paid tributes to the contributions of the late Dr. S. R. Ranganathan.

Prof. A. Neelameghan, Chairman, FID/CR, and Chairman of the International Organising Committee of the Conference, welcomed the participants.

Mr. S. Parthasarathy, Scientist-in-Charge, Insdoc, Delhi, and Co-chairman of the International Organising Committee, proposed a vote of thanks.

II. Conclusions and Recommendations

1. Introduction

1.1 Conference objectives

The main objectives of the Third International Study Conference on Classification Research may be stated as follows:

1) To examine the use and impact of the application of

(a) developments in information technology, computer technology, and communication facilities, and (b) relevant studies in linguistics, psychology, general systems, theory, and behavioural sciences, on classification, indexing, and other information ordering techniques particularly in the context of global information network design and development; and

2) To recommend areas of research.

1.2 Unesco's initiative

Whereas international, regional, and global programmes of cooperation in the fields of science, technology, environmental studies, health, culture, education, economics, and other fields of social science sponsored and promoted by the United Nations Organization and its specialized agencies such as UNESCO, UNDP, FAO, WHO, etc. and other governmental and non-governmental organizations emphasize and call for the extensive sharing of knowledge, experiences, and resources between nations, and social groups and individuals within a country and in different countries,

This Conference expresses its appreciation of the initiative taken by UNESCO in its UNISIST programme for facilitating the sharing of knowledge and experiences among all people by promoting the establishment of a world-wide information network utilizing the developments in information science and technology, computer science and technology, communications, etc, and

In this context, this Conference also takes note of UNISIST's programmes for (a) the development of a Broad System of Ordering to facilitate switching between and interconnection of, information systems, and (b) the formulation of guidelines and mechanisms to achieve compatibility and/or convertibility between information systems using a variety of indexing and classification methods, thesauri systems, etc., and recommends that such projects and programmes on ordering systems be continued and intensified so as to contribute towards the achievement of the objective of a global information network.

2. New Directions

2.1 Thesauri Construction

In the ten years that have passed since the Second International Study Conference on Classification Research held at Elsinore, Denmark, in September 1964, significant research and development work have been done in classification, indexing, thesauri building, and other information ordering methods.

Mention may be made of the preparation and use of thesauri and depth classification schemes in many fields of knowledge. A number of monographs, reports, and papers on these subjects have been published. Guidelines and standards for the construction of thesauri and schemes for subject classification have also been formulated. While the early thesauri were mostly alphabetical, those prepared in the second half of the decade provided also systematic displays of concepts/terms thus facilitating a better survey and grasp of the structure of the subject-fields covered.

Thesauri and classification schemes have been prepared for many narrow subject-fields resulting in a multiplicity of microthesauri and depth classification schemes. With a view to providing interconnection and switching between the microthesauri, classification schemes, etc. and to serve as a tool for shallow indexing and 'roof classification', attempts have been made and are being continued for preparing macrothesauri and broad systems of ordering covering all fields of knowledge.

Investigations in and the preparation of multilingual thesauri for use in international information systems, have introduced notation or coding for the descriptors in different languages thus leading to the realization of Ranganathan's three planes of work – idea plane, verbal plane, and notational plane – in thesauri construction. Also, interdisciplinary studies with inputs from philosophy, psychology, linguistics, general systems theory, and behavioural sciences – have provided new insights in this regard.

2.2 Classification and indexing techniques

The elaboration of facet analysis and synthesis has led to the formulation of models/formulae for the representation of subject structure embodied in documents. In turn, this has helped the development of indexing sy-

stems as exemplified in the variations of chain indexing, PRECIS, and the more generalised format of POPSI (Postulate-based Permuted Subject Index). Basic work is underway towards a formalized syntactical structure of subject representation for application in indexing systems.

2.3 Machine-readable catalogues

Some of the existing general schemes for classification such as DDC, UDC, CC and Bliss, have been revised and a new one, BBK, has been designed. The availability of machine-readable catalogues such as the MARC and similar cooperating cataloguing systems led to the realisation by libraries that they need to do very little of classification of books if they used the same scheme as in the machine-readable record but that they can also have the freedom to use any other scheme. Some new insight has also been gained for developing better book classification schemes particularly for shelving purposes.

2.4 Modes of formation of subject-fields

There has been a growing emphasis on theoretical studies about the modes of formation and development of new inter- and intradisciplinary subject-fields which pose problems in classification. The value of co-citation frequency studies on a large scale with computer assistance for studying links between concepts and whole subject-fields is also being realised.

2.5 Evaluatory studies

The development of more rigorous methods for evaluation of the recall, precision, cost-effectiveness, cost-benefit, ease of use and other attributes of information retrieval systems has received increased attention.

2.6 Terminology

The need for developing an agreed terminology for research in and precise communication among specialists in the field of ordering systems in particular and information science and documentation in general is being realised in an increasing measure. The establishment of INFOTERM in Vienna and the work of ISO/TC 37 should facilitate the efforts at standardization of terminology in the field.

3. Findings and recommendations

3.1 General aspects of the design of ordering systems

The Conference recognises the impact of technological advances which make possible:

a) On-line computer information systems;

b) The use of telecommunication and satellite communication for information networking on a global scale;

c) The provision of information not only to specialists in different subject-fields and professions, but also to individual practitioners for coping with everyday problems; and

d) Computer-produced printing and microforms.

These advances, particularly on-line interactive information systems, pose new challenges to classification specialists and designers of information retrieval languages, as the possibility of using natural language for input into and output from the systems is realised to an increasing measure.

On-line interactive systems require that the individual user, especially when he uses the system in a non-delegated search mode, has at his disposal one or more of the several searching aids such as the following:

a) Polyhierarchical faceted classification systems for concepts (subjects) and related terms;

b) Subject indexes;

c) Word co-occurrence data, not only data relating to the corpus of documents, but also that relating to search strategies already used;

d) Display of statistical association of concepts and terms;

e) Semantic road maps; and

f) Citation clusters data or display.

3.2 This Conference recommends:

(1) Intensive research to examine in detail the special features and the helpfulness in different contexts of these searching aids and methods of their design and use in user-oriented on-line interactive systems.

(2) Investigations on the possibility of allowing the user to search in his own natural language in data bases using pre-controlled vocabularies.

(3) Further research toward the development of a subject representation or concept coding system which will be independent of any particular language, taking note of the work already undertaken by the FID/SRC Working Group and ISO/TC 46. This could be used as an internal code of the system. The related problems involved in designing multilingual networks in which some data bases may use natural languages should also be examined.

(4) Designing an index to data bases that will indicate to the user, for any particular query, which of the data bases available on-line may provide the maximum pay-off. The problems involved in constructing the vocabulary of such an index to data bases should be investigated.

(5) Formulation and testing of criteria for ordering systems intended for use in information networks such as:

- Simplicity (the wider the range of population served, the simpler the system should be);
- Multipurpose orientation;
- Flexibility to absorb and adapt to changes in user requirement in the information world, etc.;
- Capability to operate on a multilingual data base and diversified retrieval systems;
- Requiring minimum of keyboarding and recognising and compensating for common types of input errors;
- Capable of providing positive assistance to user by guiding him along paths likely to lead to relevant information; and
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- Capable of providing positive assistance to user by guiding him along paths likely to lead to relevant information; and
- Capable of being searched in ways that are unconventional but convenient to the user.

(6) Consideration of the need for a clear distinction between classification for:

a) Shelf arrangement of documents;

b) Arrangement of surrogates for documents;

c) Use in automated and semi-automated information retrieval systems; and

d) Use in fact or data retrieval.

(7) Investigation of alternative solutions for problems of ordering in different types of information systems such as discipline-oriented, mission-oriented, switching, and management systems, and methods for integrating in global information networks ordering systems for artefacts (materials and products), trades, professions, etc.

(8) Consideration of the economic aspects of studies on ordering systems in terms of funds available, intellectual effort necessary to use systems, and time available.

4. Basic research on designing ordering systems

Until recently, to a large extent, schemes for classification, thesauri and other subject structuring tools have been generally designed on a more or less ad-hoc basis, often following current "fashions" and constructed upon preconceived subjective notions. Research has more often been of an "applied" nature, and fundamental research on ordering systems has been, with a few exceptions, neglected.

This Conference recommends basic research on ordering systems using quantitative data and linguistic, semantic, logical and mathematical models, for designing ordering systems and switching methods for global information networks on a more truly scientific basis. This would entail, among other things,

- More use being made of machine-readable data bases, and of classification schemes, thesauri, etc. in machine-readable form and monitored for studying various relationships between concepts and between their names;
- Rigorous studies on information search and structuring patterns of users;
- Use of automatic classification for providing useful quantitative measures;
- Quantification for bibliometric and scientometric studies of world literature in all subject-fields;
- Studies on organizational networks (relationship between research orgnaizations, educational institutions, professional associations) on the national level as well as on the international level, for recognizing the interrelations between subject-fields.
- Development and use of macrothesauri to provide for switching between information systems and for studying overlap between subject-fields;
- Study of existing and new models for structuring vocabularies of natural languages;
- Application of citation clustering methods for ascertaining the association, interlinking and structure of concepts and subjects as represented in documents;
- Study of the modes of formation and development of subject-fields particularly interdisciplinary ones;
- Comparative study of structures of concept-based systems and word-based systems;
- Further studies on the theory of concepts, patterns of concept-combination, etc.;
- Categorial analysis of thesauri and classification scheme elements;
- Structure of universal and special classification schemes and the ways of linking the structures; and
- Studies on fundamental syntactic structures appropriate for representation of subject structure ("absolute syntax") basic to or independent of syntactic structures of natural languages.

5. System evaluation

While there have been several studies for evaluation of performance, recall, precision and other attributes of information systems, there is need for research on the testing and evaluation of on-line information retrieval systems, which are likely to be more extensively used in the future. Questions for which answers may have to be found include:

a) Should on-line systems be designed to be queried using search statements in English language sentences rather than by translating a query into a formal Boolean expression?

b) Is the performance of systems of this general type sufficiently better than the performance of more simple natural language using systems, for example, inverted files or text words with Boolean search strategies, that the additional text processing steps are justified?

c) What are the criteria for optimum utilization of an on-line system and what would be the helpful provision for an effective user-system interface?

d) What problems arise in the use of multilingual data bases and multilingual query statements?

6. Interdisciplinary contacts

This Conference recommends the establishment of more effective contacts and communication so as to ensure better interdisciplinary collaboration among specialists interested in and contribute to, the design, development, and use of ordering systems at the micro as well as macro level, including specialists in information science, linguistics, cybernetics, semiotics, statistics, forecasting and futurology, general systems theory, artificial intelligence, psychology of learning and classification science (taxology).

This Conference further recommends that a meeting be organised involving a small group representing appropriate FID study committees, such as CR, LD, TM+OM, RI, DT, in order to facilitate interdisciplinary collaboration and research on ordering systems for global information networks and for examining ways and means of funding projects in this area.

7. Education

The "information revolution" and the extension of information services to a wider range of users, that is characteristic of present times, calls for frequent updating and adapting, of the theory and practice of information handling, and for the formulation of new

theories, guidelines and practices to meet the changing requirements of information users.

This Conference recommends that the education – formal, informal and continuing – of specialists in the field of classification, indexing, information retrieval languages, and various other ordering systems, should take cognizance of the changes mentioned above, and through the collaborative efforts of the appropriate FID Committees, Unesco, and institutions of education in library and information science, help plan the curricula, teaching methods, etc., to raise the manpower adequate to meet the new demands. The problems of education of users should also be given appropriate consideration.

8. Needs and problems of developing countries

This Conference recognizes and recommends that in designing and developing ordering systems for global information networks factors such as those mentioned below relating to developing countries, should be taken into account:

a) Similarities and differences in the levels of information consciousness among people.
b) The facility, capacity, and infrastructure available to utilize information systems and services.
c) The objectives and priorities in socio-economic development plans in different countries.
d) The need for ordering systems which can overcome the inadequacies of the information infrastructure, utilize the best features of the existing systems, and incorporate the appropriate technology developed in the different regions of the world.

FID/CR Secretariat

Some Reflections on the Bombay CR-Conference

The recent 3rd FID/CR Conference in Bombay (6–11 Jan. 1975) (see also the preceding brief note and the conclusions and recommendations) may be considered again as a milestone in the history of library and subject classification, although perhaps not in the sense some of us had hoped it to become one. Some reflections regarding participation, purpose and papers of the conference therefore should relate our impressions to all those who unfortunately were unable to come to Bombay.

1. Participation

What struck everybody most was the sad news in the beginning that the Honorary FID/CR chairman and President-Designate of the Conference, Mr. Rasmus Mölgaard Hansen had cabled that he could not proceed his way from Amsterdam to Bombay because of bad health. A second restraint was the almost complete absence of all those Englishmen who had organized the very first conference in Dorking/England 1957 and who had so vigorously supported the second one in Elsinore, Denmark 1968. It was and still is in England were most of the classification theory was developed after the Second World War taking over from India Ranganathan's ideas of faceted classification. But this was not due to a purposeful neglect of the aims of the conference that England delegated only one participant (though a very knowledgable one: Derek Austin), its underrepresentation was due – as with other countries too, to the present bad economic conditions; and although Air India had done its best to offer very low excursion rates, private financing of participants from outside India was mostly impossible regarding the distances to overcome.

There were altogether 121 participants, 70 Indians and 51 Non-Indians. 55 participants contributed to the conference, 66 were just observers. The distribution to countries was as follows: India 12+58, USA 9+2, Canada 9+1, BRD 5, Netherlands 2+1, France 2, Sweden 2, Denmark 1+3; only one representative was sent by Australia, Brasil, Greece, Norway, Poland, Switzerland, Thailand, United Kingdom, USSR, Yougoslavia. From 3 international organizations four participants were sent (FID, Unesco, European Communities).

2. Purpose

Two years in advance the actual planning of this conference had started and it was especially with regard to the UNISIST programme that the theme had been chosen to be: "Ordering systems for global information networks". Similarly it had been planned two years ahead that the results of the efforts of FID's Working Group towards a Broad System of Ordering (BSO) or a Subject-field Reference Code (SRC) should be delivered to the critical commenting of the Bombay assembly of experts. This discussion could not take place since the FID Working Group was unable to present their proposals to the conference – neither the Chairman of FID/SRC (Dr. J. Toman) nor its secretary (G. A. Lloyd) were permitted to travel to India. Thus only a summary of their papers with descriptions of the "why" and "what-for" but not about the "how" could be delivered; the speaker was allowed for this altogether 7 minutes! Anybody wishing to comment on the proposal for the structure of the Broad System of Ondering, announced to be available by March 1975, was invited to write to the Classification Department of the FID Secretariat, 7, Hofweg, The Hague.

Thus, one purpose of the conference – the response of the experts to the proposals of the FID/SRC Working Group could not be achieved, the other purpose – a thorough discussion of some major topics was unduly hampered by the schedule for the presentation of the papers. Again it was planned to present, comment and discuss each morning four challenge papers and to have the rest of the contributed papers presented and discussed in the afternoons, perhaps in parallel sessions. Our dear Indian friends, however, wanting to give everybody an qual chance arranged the program so that every paper could be listened to by everybody, 7 papers in the mornings and 9 papers in the afternoons, compressed into 19 sessions without any recognizable topical comprehension. Everybody was deadly exhausted and almost no answer to any of the open and sometimes "tantalizing" questions emerged. Some of them were e. g. posed as: (1) „What should be the principle for the structure of a new universal system of ordering?" (2) „Should in a universal scheme a technology go always with its fundamental science or should it be treated separately? (One unopposed answer at least

was here that the modern trend was towards nonseparation, expressed e. g. in many abstracting services already.) (3) "How did the development go, from nature to concepts and then to the organization of science or from nature via language to concepts and to concept systems? " (4) How do we go about to relate natural language terms to concepts thus building a thesaurus in a most economic way? " (5) How do we structure the informative phrases on document contents in order to retrieve its elements in an adequate way? " (6) "How does one assure compatibility between classification systems and thesauri? "

Such questions have now to be delegated to the discussion groups active in national organizations of classification. They might well also become topics of regional conferences which have been recommended to be held in the future.

3. Papers

In order to provide an early survey on the papers contributed they are listed and numbered here altogether in the sequence of the programme. The ones not presented or presented by someone else in the absence of the author(s) are indicated by a *.

The preceding brief note (see p. 37) provides a quantitative distribution of the papers according to the topics of the conference as outlined beforehand. We shall try to regroup them afterwards according to the different intention and contents of the papers thus displaying the emphasis given to some of the topics.

3.1 Papers presented at the 3rd FID/CR Conference

Tuesday, Jan. 7, 1975

(1) C.A. Montgomery: Toward a natural language communications interface. (Moderator: B. Harris)

(2) *J. Toman: Future trend: Two ordering systems used together? (SRC – Subject-field Reference Code) / G. A. Lloyd; J. Toman: Introduction to the Subject-Field Reference Code (SRC) or Broad System of Ordering (BSO) for UNISIST purposes. (presented by I. Dahlberg) (Moderator: V. Rybatchenkov)

(3) P.P.M. Meincke; P. Atherton: Knowledge space: A conceptual basis for the organisation of knowledge. (Moderator: L. Rolling)

(4) K. Samuelson: Information ordering in worldwide communications. (Moderator: E. Garfield)

(5) *K.I. Kurbakov; V.G. Boldov: Problem of compatibility of information classification systems and some probable methods of its solution.

(6) L. Rolling: Computer management of multilingual thesauri at the European Community

(7) T. Henriksen: A linguistic description model for indexing languages.

(8) G. Beling: Towards a set theoretical foundation of classification.

(9) A.R. Desai: Theory of integrative levels, general systems theory, theory of classification, theory of evolution, and theory of pattern recognition: a possible synthesis for organisation of universe of knowledge towards the "memory of mankind".

(10) *K. Leski: The role of classification research in the development of methods and technologies of information processing.

(11) *S.D. Neill: McLuhan and Classification. (presented by E. Svenonius)

(12) *G. Bhattacharyya: Fundamentals of subject indexing languages. (presented by M. A. Gopinath)

(13) M.J. Dreese: Comparison of document retrieval using UDC-notation given by UDC expert with catchwords taken from title by clerk, stored in computer-memory.

(14) G. A. Cooke, D. M. Heaps, M. Mercier: The manipulation of machine-readable data bases for classification research: Some Canadian experiences.

(15) L. M. Giertz: The SfB–System: Case study on an information system for global cooperation in the field of building construction.

Wednesday, Jan. 8, 1975

(16) I. Dahlberg: On the theory of the concept. (Moderator: H. Spang-Hanssen)

(17) R. Fugmann: The glamour and the misery of the thesaurus approach. (Moderator: E. V. Krishnamurthy)

(18) T. N. Rajan, B. Guha: A comparative study of subject heading structuring according to POPSI and PRECIS. (Moderator: E. Svenonius)

(19) D. Austin: Differences between library classifications and machine-based subject retrieval systems: some inferences drawn from research in Britain 1963–1973. (Moderator: E. Svenonius)

(20) M. A. Gopinath, S. Seetharama: Interdisciplinary subjects and their classification.

(21) H. Buntrock: Problems and issues in agricultural classification and indexing systems.

(22) S. K. Vilenskaya: Systematic approach as a principle of thesaurus building on the basis of the subject heading language.

Thursday, Jan. 9, 1975

(23) E. de Grolier: In search of an objective basis for the organization of knowledge. (Moderator: I. Dahlberg)

(24) E. Garfield, M. V. Malin, H. Small: A system of automatic classification of scientific literature. (Moderator: R. Fugmann)

(25) H. Borko: Changing roles and developments in automated classifications. (Moderator: M. Wolff-Terroine)

(26) *M. Kochen: Organising knowledge for coping with needs. (presented by C. Montgomery) (Moderator: J. H. Schneider)

(27) C. R. Cavalcanti: Universal integrated media for information processing.

(28) J. P. Immroth: A lexical essay towards the development of the theory of indexes to classification schemes.

(29) *L. Kofnovec, D. Simandl: Quantitative structure of world scientific and technical literature and its use for optimizing general classifications.

(30) A. Ghose, A. S. Dhawle: Inter- and transdisciplinary ordering system for universe of knowledge.

(31) E. Svenonius: Translation between hierarchical structures: an exercise in abstract classification.

(32) *J. Helbich: Experimental comparison of nine statistical procedures for measuring selective power of single words.

(33) F. Kleszcz: Method of information retrieval and subject index compilation for abstracting periodicals with the use of a thesaurus enlarged with machine part classification.

(34) B. Harris, E. Sinas, R. Laskowski: Faceted information retrieval for linguistics (FIRL): further developments.

(35) *V. Maixner: Classification systems and retrieval languages.

(36) D. F. Hersey, W. R. Foster, W. H. Payne, B. L. Hunt: Toward a machine-assisted indexing vocabulary for international use: Recent developments at the Smithonian Science Information Exchange (SSIE).

(37) *J. Janos: Information system with automated indexing based on the analysis of the texts of abstracts (results of an experiment).

(38) *R. L. Jachowicz: Application of classification as basis for the formulation of thesaurus as exemplified by concept of the Polish thesaurus of hospital science.

(39) *E. Scibor: Indexing languages for future Polish national computer-based information system.

Friday, Jan. 10, 1975

(40) H. Spang-Hanssen: Are classification systems similar to natural languages? (Moderator: C. A. Montgomery)

(41) F. W. Lancaster: Vocabulary control for on-line, interactive retrieval systems: requirements and possible approaches. (Moderator: H. Borko).

(42) J. H. Schneider: AUTOCLASS: A computer system for facilitating the creation and updating of hierarchical classifications. (Mod.: D. Austin)

(43) H. S. Heaps, K. V. Leung: Automated document classification based on a theory of relevance. (Moderator: W. G. Hoyle)

(44) A. Neelameghan: Absolute syntax and structure of an indexing and switching language.

(45) P. A. Richmond, N. J. Williamson: Three dimensional physical models in classification.

(46) *D. Rai: The Universal Decimal Classification: an integrated information retrieval system.

(47) M. Wolff-Terroire: Macrothesaurus, why and how.

(48) W. G. Hoyle: A measure of overlap in classification systems.

(49) M. Rigby: Advances since Elsinore in use of automatic equipment for vocabulary, classification schedule and information or data control on a universal scale.

(50) *A. V. Sokolov: Compund indexing languages.

(51) R. Rao, V. A. Kamath: INIS: A successful experiment in operating a decentralised, computer-based, mission-oriented information system.

(52) S. E. Diamessis: A comparative linguistics approach to classification and information processing: A computer grammar for Indo-European machine translation – translation based on (Latin and) Greek.

(53) E. Wåhlin: Special classification systems used together with a common reference system: The AR-complex

(54) G. Wersig: Experiences in compatibility research in documentary languages.

(55) S. W. Massil: Design of systems for a regional information centre.

Saturday, Jan. 11, 1975

(56) M. A. Shepherd, C. R. Watters: Hierarchical retrieval from structured text.

(57) E. V. Krishnamurthy: A new chemical notation system.

Conference Panel: Discussion and approval of Draft of Conclusions and Recommendations.

3.2 Topical regrouping according to authors' emphases:

1. Universal (global) classification systems, bases, importance, control

12 papers: Toman/Lloyd-Toman (2), Kofnovec/Simandl (29), Wolff-Terroine (47), de Grolier (23), Hersey et al (36), Wåhlin (53), Maixner (35), Cavalcanti (27), Samuelson (4), Kurbakov/Boldov (5), Ghose/Dhawle (30), Desai (9).

2. Problems of machine-assisted classification and indexing

8 papers: Borko (25), Cooke/Heaps/Mercier (14), Garfield/Malin/Small (24), Helbich (32), Hoyle (48), Heaps/Leung (43), Janos (37), Shepherd/Watters (56)

3. Thesaurus organisation and problems

5 papers: Lancaster (41), Vilenskaja (22), Rolling (6), Scibor (39), Leski (10)

4. Presentation of particular schemes

5 papers: Buntrock (AGRIS) (21), Giertz (SfB) (15), Harris/Sinas/Laskowski (FIRL) (34), Schneider (AUTOCLASS) (42), Rao/Kamath (INIS) (51).

5. Syntactical models for classificatory statements

4 papers: Austin (19), Rajan/Guha (18), Fugmann (17), Neelameghan (44).

6. Compatibility problems

3 papers: Svenonius (31), Wersig (54), Jachowicz (38)

7. UDC, description, revision and use

3 papers: Rigby (49), Rai (46), Dreese (13)

8. Conceptual basis of classification

2 papers: Meincke (3), Dahlberg (16)

9. Relation between natural language and classification

2 papers: Montgomery (1), Spang-Hanssen (40)

10. Description models of classification systems (linguistic and classificatory)

2 papers: Henriksen (7), Bhattacharyya (12)

11. Classification and the user

2 papers: Kochen (26), Massil (55)

12. Relations in classification systems

1 paper: Richmond/Williamson (45)

13. Formation of subject fields

1 paper: Gopinath/Seetharama (20)

14. Input-output questions (machine translation)

1 paper: Diamessis (52)

15. Notational systems

1 paper: Krishnamurthy (57)

16. Indexes to classification systems

1 paper: Immroth (28)

17. Terminology of classification

1 paper: Beling (8)

18. Multilevel indexing

1 paper: Sokolov (50)

19. Classification for machine parts (or non-documentary classification?)

1 paper: Kleszcz (33)

20. Anticlassification

1 paper: Neill (11)

This rather rough "regrouping" mostly according to the intentions of the authors did not consider the possibility of multiple choices for classing papers although in may cases this should have been necessary.

4. Why 'milestone'?

In comparing formally the three conferences of Dorking, Elsinore and Bombay we notice the following development:

Dorking: 36 participants from 8 countries, 8 papers.
Elsinore: 57 participants + 6 observers from 15 countries + 3 intern. org., 27 papers
Bombay: 55 participants + 66 observers from 18 countries + 3 intern. org., 57 papers.

There is a tendency for growth to be seen as everywhere, the greater amount of papers between Bombay and Elsinore is, however, not only due to growth and expansion of the field but also to the fact that for Bombay hardly any papers were rejected, for the Elsinore conference many were not accepted.

In comparing the contents of the papers (for the papers of Dorking and Elsinore please see p. 52 in I. C. 74/1) we may find indeed some topical similarity between the three conferences, regarding the problems of machine assisted classification and indexing, the presentation of particular schemes and the problems of notation. Besides a better understanding of the processes involved we may find, however, the following new weights and awareness of a new look at:

1) finding principles and elaborating structures for universal classification systems and macrothesauri,
2) elaborating a useable theoretical-conceptual basis for the development of classification systems
3) investigating measures to insure compatibility between classification systems and thesauri
4) formulating syntactical rules for the presentation of concept-based statements on document contents.

Besides this there exists obviously an increasing tendency towards an improved use of computers for 1) computer assisted construction of systems as well as 2) for an organized/ordered input, storage and display of information, possibly on-line display. Much more user orientation is visible also, than ever before although not so very much concerning an easy comprehension of the structure of classification systems than with regard to an easy use of an on-line display of indexed information .

These insights went into the formulation of the Conclusions and Recommendations of the Bombay Conference. They were selected from the papers as well as from suggestions coming from the participants. Especially the very last recommendation concerning the needs and problems of developing countries was a request well understood by everybody since it came from the country where this 3rd CR conference took place. It seems to us that these desires must be taken most seriously since a chain is always as strong as its weakest link, and the developing countries form indeed links in the global network of information systems.

5. India's contribution

Although almost everybody anticipated lifely discussions with the Indian colleagues it was still a surprise for most of us to meet so many extremely well trained classificationists. This conference took place in India because the Secretariat of FID/CR went to India in 1973. This was not only due to the fact that India had offered to take over but was also meant as a recognition of the most valuable contributions India has made ever since Sri R. Ranganathan has started to develop a new theory of classification in the thirties and profoundly changed existing practices of the West by the faceting of systems and structures of classificatory statements. It is hoped that the happiness which so many Indian friends felt, having the chance to talk to colleagues whom they only knew from the literature may path a way towards a better common future exchange of ideas and information. If nothing else would result out of this conference this would already be a great deal! *I. Dahlberg*

Presentation of Classification-Committee-work at German Documentation Conference

At the Deutsche Dokumentartag, Oct. 7–11, 1974 the Committee on Classification and Thesaurus Research (KTF) of the German Documentation Society held an open meeting under the chairmanship of the DGD-Vice-President Prof. Dr. Dr. A. Diemer, Düsseldorf, summarizing and presenting results from the meetings of 1973 and 1974. The research activities of the Committee have been concerned with the problem of relations, especially with paradigmatic and syntagmatic relations in classification and thesaurus work. After a survey of the papers discussed during the preceding meetings by *A. Diemer* the following papers were presented and discussed:

N. Henrichs: Dokumentenspezifische Kennzeichnung von Deskriptorbeziehungen: Funktion und Bedeutung. – *R. Jansen*: Die Bedeutung der Zugehörigkeitsrelation für Thesaurusstruktur, Indexierungsmethode und Recherche. – *R. Fugmann*: Grenzen des Thesaurusverfahrens bei der Wiedergabe von Begriffsrelationen. The four papers will be published in the proceedings volume of the Dokumentartag 1974, to appear in Verlag Dokumentation, 8023 Pullach b. München. The paper by Fugmann has already been published in Nachr. Dok. 26 (1975) No. 1 and in an English version in Intern. Classificat. 1 (1974) No. 2. The report on the activities and papers discussed in the 1973–1974 KTF-meetings was published in Nachr. Dok. 26 (1975) No. 1, p. 27–32. *I. D.*

Ranganathan Award for Classification Research

At the last meeting of the FID-Committee on Classification Research (FID/CR) Jan. 9, 1975 in Bombay, the following text was approved for the Memorandum concerning the *Ranganathan Award* for an outstanding contribution in classification research which is sponsored by the *Alumni Association of the DRTC* (Documentation Research and Training Centre) in Bangalore and which is to be awarded from now on by FID/CR every two years:

1. Name

The name of the award will be the "Ranganathan Award for Classification Research". It is hereafter referred to as the "Award".

2. Awarding Body

The Committee on Classification Research (FID/CR) of the International Federation for Documentation (FID) will be the Awarding Body.

3. The Award

The Award will consist of a Certificate of Merit awarded to a person chosen by the FID/CR, every two years, for outstanding contribution in the field of classification in recent years.

"By 'Classification' is meant any method for recognizing relations, generic or other, between items of information regardless of degree of hierarchy used and of whether those methods are applied in connection with tradition or computerized information systems". (FID/CR Terms of Reference, 1973).

4. Procedure

(a) For the purpose of each Award, the Chairman of FID/CR will appoint the "Ranganathan Award Subcommittee". The Subcommittee will consist of five members: Three of which will be nominated by the Chairman, FID/CR and one by the FID/CR Committee, and one by the DRTC Alumni Association, the benefactor of the Award. The Subcommittee will have a Chairman. The Chairman will be elected by the members of the subcommittee.

(b) The term of office of the subcommittee shall be two years. The term of office of the members nominated by the Chairman will be two years.

The term of office of the members nominated by the FID/CR Committee and the DRTC Alumni Association will be one year only.

(c) The Chairman of the Ranganathan Award Subcommittee will arrange for a world-wide announcement, inviting nominations about works for consideration. This announcement will specify (a) The Award, (2) The rules for candidacy, (3) The procedure for nominating works for consideration, (4) Closing date, and (5) Other pertinent information, if any.

(d) Works published not earlier than three years before the date of the Award, or unpublished works may be nominated for consideration. There will be no limitations of age, sex, or nationality for the nomination and the Award.

(e) The definition of the term 'Classification' as given in the FID/CR Terms of Reference (quoted in Sec 3 above) will govern the selection of the work for each Award.

(f) The closing date for receiving works from the authors or nominators will be six months before the date of the Award.

(g) The Ranganathan Award Subcommittee will review all the works received for consideration; and it will make a decision as to which work should receive the Award. The Committee reserves the right not to make an Award if such a decision is warranted. The decision of the Subcommittee will be final and it is not subject to appeal.

(h) The Certificate of Merit may be presented to its recipient at a special session of an FID Congress.

5. Publication

If the award-winning work has not been published previously, the author of the work will have the option to get it published by FID/CR.

The Aslib Co-ordinate Indexing Group

The group was formed in 1966 to introduce the then novel technique of feature card indexing. A number of "how I did it" papers were presented; some later appeared in Aslib Proceedings. Activities were dominated by R. Snel, G. M. Boyd and W. Batten who shared the fixed ideas that classification was alien and that vocabularies should be reduced to about 600 terms – further restriction was the cause for rejoicing. Batten changed his views after moving to UKCIS.

Apparent optimum vocabulary size and attendance at meetings dwindled in parallel, but before the group became temporally moribund a study was started based on indexing second leaders (editorial comment) from The Times newspaper. Topics ranged widely and included comment both on international affairs and on national eccentricities. About forty people were involved; these included both information scientists and a group af amateurs. Several indexing styles were represented, ranging from finite vocabularies to subject headings. Unfortunately the data collected has never been analysed exhaustively although the results of a partial study were reported in Aslib Proceedings (1968, 20 (4), 218–32). It is now clear that the projet was over ambitious and inadequately controlled.

In 1970 the group was woken from its slumber largely through the efforts of Leo Jolley. In its reconstituted form the Group aimed at greater membership participa-

tion mainly through regular monthly meetings plus annual conferences. The latter activitiy has grown from an initial one-day affair staged in Birmingham to the Informatics series.

It had also become clear that the Group could not exist on a diet of descriptive papers, but would have to explore the fundamental aspects of indexing without hinderance from any supposed limits to co-ordinate indexing. Non bibliographical uses for feature cards and the relationship of coordinate indexing to other classificatory techniques have frequently been discussed.

In the early stages it seemed desirable to produce a thesaurus on co-ordinate indexing, but development has not progressed beyond a long series of draft glossaries due to endless terminological battles. Nevertheless, much has been learned and this activity has encouraged the theory that indexing is essentially a linguistic activity.

The group was intensely critical of the ISO draft specification for the construction of mono-lingual thesauri, particularly of its terminology, its structure (or lack of it), poor examples and the admixture of recommendations with ordinances. In consequence the group has become involved in drafting a British Standard on the same topic. At a more mundane level the design of feature cards and their ancillary drills or punches have been critically appraised, and an 'organization and methods' study was made into the costs of operating manual systems.

R. A. Fairthorne has been a member of the Group's Committee since its inception. He has been a perfect guru in that he has gently led and never pushed. Moreover many meetings have been enlivened by his comments. Leo Jolley has also contributed much, particularly in broadening the Group's horizons towards non-library systems (hospital and personnel records, for instance) and towards general systems theory. As yet moves towards computing have only been made with caution as two other Aslib groups operate in this area.

Kevin P. Jones

The Intermediate Lexicon for Information Science

An Intermediate Lexicon is a device which will facilitate the exchange of index entries to documentary material between information centres with a common interest. The Intermediate Lexicon acts as a switching mechanism to translate the indexing decisions made using one indexing language, via the Intermediate Lexicon, into equivalent decisions in other indexing languages covering the same, or largely overlapping subject area.

In essence, the Intermediate Lexicon incorporates all the indexing concepts present in each of these indexing languages for which it is required to switch indexing entries.

Research has been in progress[1] at the Polytechnic of North London School of Librarianship since August 1971 with a grant from the British Library Research and Development Department on evaluating the feasibility of an Intermediate Lexicon for Information Science. Work has been directed towards (a) assessing the effect of switching between indexing languages with different structures, levels of specificity, and vocabulary size, for which a report is now available; (b) relative retrieval performance of indexes compiled from switched indexing as compared with direct indexing, and (c) a pilot study in several information centres using the Intermediate Lexicon for the exchange of index entries in order to assess the benefits of cooperation for each centre.

Verina Horsnell

1 See also: Horsnell, V.: Intermediate Lexicon for Information Science. A feasibility study. London: Polytechnic of North London, School of Librarianship 1974. 110 p. (reviewed in this issue by W. v. Mach)

"Horizons of Classification" at ASIS Conference

The Special Interest Group on Classification Research (SIG/CR) of the American Society for Information Science (ASIS) had been concerned for some time with the definition of classification. From an investigation into the activities of members of classification societies some more clarity was hoped to be gained. Speakers from three different areas therefore were asked to outline the activities of their particular application areas at the SIG/CR Meeting during the ASIS Conference in Atlanta, Oct. 13–18, 1974. These were: L. A. Neidell with "The DATA CLASSIFIER as seen in the membership and activities of the Classification Society", E. Blume: "The INFORMATION CLASSIFIER as seen in the maintenance of the Library of Congress Classification Schedules", and J. Harris: "The USER of classification systems as seen in the membership of the SIG/Classification Research". In the subsequent discussion the question could not be resolved whether SIG/CR should be renamed since most of its members were not concerned with classification *reserarch* but with its application, with classing and indexing. The papers will not be published, the session was recorded on audiotape and can be ordered from Convention Seminar Cassettes, 13356 Sherman Way, North Hollywood, Calif. 91605, USA.

I. D.

NEWS – NACHRICHTEN

ISI-Lectures on Automatic Classification

Two representatives of the Institute for Scientific Information, Philadelphia, Pa., *Dr. Morton V. Malin* and *Mr. A. E. Cawkell* lectured in Köln/FRG on Nov. 13, 1974 on possibilities for an automatic classification of document contents by using the clusters (and their authors) which have been identified through co-citation frequencies within the ISI citation indexing system. The lectures took place at the Training Centre for Librarians (Bibliothekar-Lehrinstitut des Landes Nordrhein-Westfalen) at the University of Köln, the chairman of the discussion session was *Prof. Dr. Günther Pflug*, Direktor of the Interuniversity Library Center, Köln.