

brary Classification". The authors had designed a schedule of geographic entities with special reference to India and Madhya Pradesh. The scheme of isolate numbers could be used with any system whether using pure or mixed notation. Also the paper suggested a method of cooperative classification by creating common or uniform schedules. The fourth paper was one which had been prepared at an earlier time by **M.A.Gopinath** on a "Lexicographic Approach to Classification and Thesaurus Construction". It was presented by Professor Kaula. The paper described the common features of classification and thesauri and common methods for their construction. It further discussed various kinds of thesauri and step by step methods for their construction based on Ranganathan's approach and techniques. For thesauri the approach is essentially classificatory; the difference is only in the notational plane.

A paper by **Paris Arnopolos** (Canada) was entitled "A SUM of Science". Using the taxonomy and methodology of sociophysics a System Unification Model (SUM) had been developed. The model attempts to relate elements of scientific theory in a taxonomic order. Sociophysics integrates the basic principles of the natural and social sciences and aids in enhancing and understanding the global picture of human reality. The final paper in the session by **Amitabh Chatterjee** was on the "Treatment of Complex Subjects in Documentary Classification With Special Reference to CC and BC". It was a thorough historical study of phase analysis in the Colon Classification. The treatment of phase analysis in CC was then compared with the tackling of complex classes in the Bliss Bibliographic Classification, second edition. The author concluded that there is still scope for future research in order to identify new kinds of relationships among components of subjects. This one day seminar was a mixture of old and new issues in classification research pertaining to both basic research and practical problems encountered through the use of new media and the electronic environment.

Summing up the proceedings of the seminar, Professor Kaula visualized the trends and elucidated recommendations as follows: Classification is quite relevant and useful for the organization of electronic information. It provides more effective and innovative methods for storage and retrieval of data in online and networked information. Web indexes, hypertext and subject trees all inherently employ classificatory methods. Hypermedia lends itself to long term as well as to immediately required user-oriented classification. There is a need to discover new modes of handling the growth of knowledge, as well as dealing with the relationships among components in complex subjects. There is also a need for renewed research on Ranganathan's idea of the "absolute syntax" of facets.

In conclusion it was resolved that FID be requested to direct and sponsor research in the following areas:

1. Evaluation and use of current terms in classification schedules, and at the same time the identification and removal of obsolete terms;
2. Fixation of norms to identify basic subjects;
3. Design of elaborated and micro-level schedules of common isolates;
4. Further research in phase and facet analysis techniques;
5. Further research in the theoretical principles of knowledge organization in the electronic environment;
6. Research in the design of methodologies for comparative study of classification systems;
7. Augmentation and simplification of notational techniques;
8. Examination and debate on the possibility of a new general system of classification;
9. Encouragement of cooperation in classification organizations and systems.

The seminar assembly was convinced that Ranganathan's classificatory principles, as given in his *Prolegomena to Library Classification* (1967), still find full application in the organization of electronic media. Yet there is a timely need for working out new dimensions of his theories to adapt to the new environment. Edited from the original report prepared by M.P. Satija.

ASIS SIG/CR and the 1998 Annual Meeting

The major programme of SIG/CR at the 1998 ASIS Annual Meeting was the 9th ASIS SIG/CR Classification Research Workshop, held on October 25, 1998 in Pittsburgh USA. Eight papers were presented. A paper on "Generalized Software Requirements to Access Thesauri and Classification Schemes for User-Based Image Collections", presented by **Barbara Barnes, Eric Johnson, Jennifer Young, and Pauline Cochrane**, described proposed schemes for describing and indexing two image collections and the requirements for the software that would give end-users access to thesaurus terms and a graphic display of faceted classification structures of indexing records. One collection consisted of editorial cartoons; the other dance videos. The research recognizes the problems of interpretation of meaning and subjective judgement of these media by indexers and suggests that faceted classification schemes can be used to assist indexers in determining the "aboutness" of these materials. In doing so the paper sets out the facets of data needed to index each of the media types. Guidelines are proposed for each media and it is assumed that the indexer may need to use several sources for thesaurus terms or create a new thesaurus. Guidelines for indexing are also

given as well as requirements for the retrieval interface and the software design. **Caroline Beebe** and **Elin Jacob** explored the nature of "Graphic Language Documents, Structure and Functions" from the perspective of document structure of "spatially oriented objects" in order to identify methodologies for the representation and classification of images in a computerized environment. The Bauhaus concept of form, function and design principles derived from Gestalt theory was used. In their conclusion the authors state that "the migration of classification theory and practice into the digital environment opens new possibilities for representation" of images. **Elizabeth Davenport** concentrated on the handling of health care information in her paper on "Translating Texts into Care: Classification Issues Raised by Evidence-based Practice in the UK Health Sector". Problems were examined "in terms of physical access and in terms of adequate surrogates for texts (translations) like indexes, abstracts [and] systematic reviews". This, in essence, constitutes a problem of the reading and evaluation of clinical literature, and representing it appropriately for local practice. The context of the paper is the nursing profession and its use/non use of the literature to support its practice. Continuing the most popular topic of the workshop, **Olivia Frost** and **Anna Noakes** discussed "Browsing Images Using Broad Classification Categories". In a project developed at the University of Michigan, the researchers used classification to group sets of images to facilitate purposeful browsing. In their paper they addressed such questions as "Does a browsing approach work? How feasible are thumb-nail-sized images for browsing? Will a structured browsing approach appeal to a broad set of users? Will one set of categories fit all? Among the conclusions reached was evidence that the system may be better for generalist use in searching images rather than specific factual queries. In their paper, **Carol Jean Godby** and **Ray Reighart** examined the possibility of "Using Machine-Readable Text as a Source of Novel Vocabulary to Update the Dewey Decimal Classification". This paper addressed a possible method for aiding DDC to keep up with changes. New natural language vocabulary terms based on English usage are mapped to the most appropriate DDC notations. A paper by **Uta Priss** and **Elin Jacob** on "A Graphic Interface for Faceted Thesaurus Design" described "a formalization of faceted thesauri that is based on formal concept analysis". Graphic displays of thesauri were facilitated as line diagrams of mathematical lattices. The results were described and demonstrated through examples of one type of faceting as a strategy for designing thesauri in an alternating top-down and bottom-up approach. **Alenka Sauperi** and **Jerry Saye** presented "Subject Determination During the Cataloguing Process: an Intensive Study of Five Catalogers". Their re-

search zeroed in on the question "How do catalogers decide about the topic of the document and appropriate subject descriptions?" Human subjects were observed and interviewed about their work and experience in subject cataloguing in libraries. The think-aloud method of observation and unstructured interviews were used and the results compared with similar previous research. Performance was observed to consist of 5 stages although the sequence of the stages was not necessarily linear. Each of the stages identified problems which need further investigation. A common strategy for subject determination was to search for patterns in sets of classification numbers and subject headings already assigned to items in the collection. Reading was recognized as an important basic skill. Complementary to this is the structure of the document. The problem of inferring possible uses of an item was also recognized. As the authors have noted, the sample did not "allow for generalization" but it does identify questions about the process which still need answers. In the final paper of the Workshop **Min Song** discussed "Cluster-based and Association-based Visualization Systems as Information Exploration Tools". The purpose of the study was "to investigate whether two of the algorithms, variance of Ward's hierarchical clustering algorithm and a Kohonen neural network algorithm, can help improve information exploration of unknown data collections". Initial results suggested that both systems can categorize heterogeneous data collections into manageable sub-spaces so that users can successfully locate documents of interest. The systems worked well for browsing tasks but not so well for users who preferred keyword searching and those who preferred an alphabetical organization of items for browsing. In addition to the Classification Workshop, Members of SIG/CR participated in a number of sessions in the main conference. In a programme on "Classificatory Structure and the Construction of Reality: Applications and Integration into LIS Schemes" papers concentrated on the fact that the activities involved in representing information for retrieval differ from those involved in developing the content of a field through internal discourse. In this context, an LIS classification must draw on the world view of conceptualization while at the same time "exerting its own unique shaping and design of material for effective retrieval". Four presentations were made in this session. Topics included "Dialogical Aspects of Mapping Interdisciplinary Concepts in Classification Schemes" by **Lynne Howarth**, "Reading Classifications: Society, Values, and Classificatory Structure" by **Clare Beghtol**, "Webs of Meaning: the Role of LIS Classification Schemes in a New Sociology of Information Systems" by **Hanne Albrechtsen**, and "The Unique Knowledge Domain That is Classification for Retrieving Information" by

Marcia Bates. Multilingual problems were discussed in a session on "Cross-Language: Applications and Large Scale Vocabularies". The goal of the session was to address the problems of design, implementation and employment of multilingual vocabularies in such applications as "information retrieval, information routing, information summarization and text translation". **Dagobert Soergel** focused on "Large Multilingual Vocabularies: Structure and Software Requirements". Multilingual thesauri are complex in structure and the software must be able to handle such complex issues as relationships between terms in different languages and be able to carry out linguistic analysis to establish normalization and the determination of components of compound terms. **Noriko Kando** and co-authors looked into the question of "Cross-Language Information Retrieval and Automatic Construction of Multilingual Lexicons" with examples from English and Japanese. The authors recommended two possible approaches – clustering parts of manually assigned index terms and the determination of correspondence of components of compound terms. **Gertrud Champe** considered "Terminology in a Translation Context" in which she focused on two problems – the fact that translation is hindered because so many terms in the English language are only paraphrased in other languages and the recognition that "many developing countries do not wish to practice technology in the old colonial language" making creative collaboration necessary. The whole operation is very time consuming and frequently requires person to person research. In the final paper, Michele Hudon discussed "Logical Relations of Equivalence and Inclusion in a Multilingual/Multicultural Thesaurus". Construction of such a thesaurus is complex and requires terminological inventories for each language involved, fully developed thesaurus structure for each language and well defined guidelines.

In a programme on "Digital Libraries in the K-12 Environment" **Raya Fidel** presented a paper on "Web Searching Behaviour of High School Students". Using field observations with students thinking aloud and the use of interviews, her findings indicated that the students enjoyed web searching and found access easy. Problems revealed the need for more training in the use of the web and system design based on user seeking and searching behaviour. In a joint programme on "Improved Internet Access: Guidance from Research on Indexing and Classification" seven presentations were made. In "Hyperlinks as Index Terms: Exhaustivity, Specificity and Beyond" **Heting Chu** and **Shaoyi He** discussed the fact that hyperlinks function as index terms although, until recently, they have not been treated as such to any great extent. Following from a previous study on the quality of hyperlinks, the purpose of this study was to determine whether or

not there is "an optimal exhaustivity for web hyperlinks". Other factors in the study include specificity, accuracy and consistency. In "Semiotics or Chaos of Web Sites" **Marisa Urgo** discussed the premise that there is a lack of systematization and predictability in internet access. She contends that there are recognizable patterns which pass from one subject area to another and that within subject areas content takes on predictable forms. She concludes that web site content and structure is worthy of further study as an aspect of semiotics or chaos. In "Classifying Web Sites: Site Metrics and URL Characteristics as Markers", **Wallace Koehler** addressed the need for "automated or near-automated methodologies" in indexing to provide access to internet content. He outlined a number of approaches to this problem and suggested that some measures can be derived from inspection of the URL or though the application of software. The final presentation in this session was a paper on "The Use of Classificatory Knowledge Structures to Guide the Design and Evaluation of Search Interfaces" by **Philip H. Smith**. As a basis for design, he focused on the need for task analysis to determine what the user needs and observed that "classification research with its emphasis on the structuring and representation of knowledge offers a great deal of guidance" in carrying out such a task analysis. Finally, in a programme entitled "International Trends and Issues in Classification and Subject Analysis Research" three papers were presented. In "Worldwide Dewey" **Joan C. Mitchell** discussed research and application involving the Dewey Decimal Classification and efforts to provide for its use for effective access in an online environment. In "Ten Years of International Subject Analysis Research" **Ia McIlwaine** and **Nancy Williamson** described the results of a survey of research into knowledge organization as covered by the major journals, conference proceedings and other publications in the field. A number of important areas were identified, but the authors concluded that while much important research is being done, it tends to be individual research and is seldom cumulative. There are a number of reasons for this, but one of the most important factors is the need for increased attention to interdisciplinary research in order to broaden horizons and to promote generalization of principles and findings. In the final presentation, **Hanne Albrechtsen** and **Birger Hjørland** provided a two part examination of "Current Trends in International Classification Research: Implications and Recommendations for Future Developments". Part one dealt with a general overview and part two concerned itself with new types of systems which would take into account linguistics and natural relationships, and which would provide for greater flexibility than our present systems do.