ISKO News 11

Executive Board Finalizes Two Bylaws

At its recent meeting on Nov. 21, 1992, the ISKO Executive Board discussed for a second time the following Bylaws: (1) on International Conferences and (2) on Regional Chapters and released them for publication and distribution to the membership at the very next occasion. Further Bylaws regarding Special Working Groups, Publisher Contracts, and the General Secretariat will be discussed at the next meeting in March 1993.

New ISKO Coordinators

Altogether five new Coordinators will be starting to become active in their respective countries: Prof. Nancy WILLIAMSON, from the Faculty of Library and Information Science, University of Toronto, Chair of FID/CR and member of the ISKO Scientific Advisory Council, has agreed to become ISKO's Coordinator for Canada; for Portugal, Mrs. Maria Ines LOPES from the National Library in Lisbon will act in this capacity; and for Austria, Dr. Gerhard BUDIN from Infoterm, also Secretary of the International Institute for Terminology Research, will continue as Coordinator after Mrs. KAISER-COOKE had to retract because of other obligations. In China, Prof. Hou HANQING, Department of Library and Information Science, Nanjing Agricultural University, started to work towards forming a Chinese ISKO Chapter and Mr. E.N.O. ADIMORAH, Director of the National Information and Documentation Center at the National Library of Nigeria, offered his help as Nigeria's Coordinator.

A coordinator's office consists in preparing for a Regional Chapter which can be established if at least ten members of a region express their willingness to form such a chapter.

India to Establish its ISKO Chapter

During the IFLA Conference in New Delhi, Sept. 2, 1992, steps were taken to establish an ISKO Chapter for India with Prof. Krishan KUMAR of the Delhi University as chairman, Dr. M.A. GOPINATH, DRTC, Bangalore, as Vice-Chairman, Dr. P.S.G. KUMAR as Secretary, and Dr. M.P. SATIJA as Treasurer. Registration with the civil offices in India is aimed at. (We would like to add, that - in general - it is not necessary to apply for a registration, since ISKO is registered as an international society. However, if such a measure is demanded, e.g. for the opening of an account or for other reasons, perhaps to facilitate funding from outside, a chapter should pursue the necessary steps.)

Call for Papers, 3rd German ISKO Chapter Conference

This conference is scheduled for Oct. 26-29, 1993 and will again take place at Weilburg under the general topic:

Systems-oriented, Cognitive and Model-Oriented Aspects of Knowledge Organization.
Proposals for papers are invited in the following 7 main subject groups:
(A) *Epistemology and Knowledge Organization*
(B) *Neural Networks as Systems of Knowledge Organization*
(C) *Knowledge Acquisition and Knowledge Representation*
(D) *Practice and Systems of Knowledge Organization*
(E) *Knowledge Organization in Libraries*
(F) *Knowledge Organization and its Teaching*
(G) *Knowledge Organization in Special Application Areas.*

The Call is available from the ISKO General Secretariat, Woogstr. 36a, D-6000 Frankfurt 50 or from Prof. Dr. Norbert MEDER, Universität Bielefeld, Pädagogische Fakultät/AG9, Postfach 8640, 4800 Bielefeld, Germany, to whom also abstracts should be sent until March 31, 1993.

20-Languages Dictionary in Cataloguing and Classification

Our Executive Board Member, Mr. Rudolf UNGVARY from Budapest will compile in 1993-1995 under contract with the K.G. Saur Verlag, Munich, a new edition of the "Dictionary for Library Science", once published in 20 languages by the Hungarian Pipics almost 30 years ago. The new version of this dictionary in tabular form will concentrate on the fields of cataloguing and classification. Mr. UNGVARY pointed out that he would especially like to include also all the terms getting now into the domain of cataloguing and classification together with the new computer technology, including, e.g., such terms as used for the different fields of an exchange format. The languages selected for this dictionary are: English, French, German, Spanish, Russian, Italian, Portuguese, Dutch, Polish, Czech, Slovakian, Hungarian, Bulgarian, Romanian, Croatian, Serbian, Swedish, Finnish, Norvegian, and Danish. If anybody could or would be of help in this regard, please contact Dipl. Ing. Rudolf UNGVARY, Nyul u. 14, H-1026 Budapest, Hungary.

Cognitive Paradigms in Knowledge Organization. Technical Report on the 2nd International ISKO Conference

by M.A. GOPINATH

The 2nd International ISKO Conference was held in Madras, India, from August 26-28, 1992. It was sponsored by the Madras Library Association, The University of Madras and the Sarada Ranganathan Endowment for Library Science. The Conference was attended by 71 delegates from 12 countries. A pre-conference volume containing all the papers received and accepted for presentation at the conference was brought out by the Organizing Committee and published by the Sarada Ranganathan Endowment for Library Science.

The theme of the conference was *Cognitive Paradigms in Knowledge Organization*. The theme was broadly interpreted to include both fundamental and empirical research in a wide range of activities involving knowledge organization such as Library Classification, Information Storage and Retrieval, Learning Situations, Decision Support Systems, etc. as well as applications in specific subject fields. The papers were grouped into the following broad categories:

(1) *Knowledge and knowledge organization: The needs and the nodes.*

(2) *Knowledge seeking in libraries.*

(3) *Knowledge seeking in information retrieval.*

(4) *Knowledge seeking in problem solving, decision making and learning situations.*

(5) *Taxonomic approach to knowledge representation.*

(6) *Analytico-synthetic approaches to knowledge organization.*

(7) *Cognitive paradigms and their application to knowledge organization.*

(8) *Cognitive paradigms in knowledge base.*

Inauguration

The Conference was inaugurated on Wednesday, 26 August 1992, at the Conference Hall of the Hotel Connemara, Madras. The conference premises had the historical and modern outlook in its environment. The Inaugural Session began with a welcome by Prof. M.A. GOPINATH on behalf of the Indian Organizations. He stressed that the theme of the conference included what Prof. RANGANATHAN wanted to achieve throughout his life; the ISKO Scientific Advisory Council had suggested the theme. Dr. I. DAHLBERG, President of ISKO, welcomed the gathering and spoke on the theme of the conference: that knowledge itself is a result of cognitive activity of human beings, that organization of knowledge calls for recognition of thinking, learning, problem-solving, and decision-making processes. The current conference was to bring a symbiosis between the current state-of-the-art of information technology and its contribution towards cognitive paradigms for knowledge organization. Prof. A. NEELAMEGHAN, Conference-Chair, gave opening remarks saying that knowledge organization was close to Dr. Ranganathan's heart and mind and that throughout his long life he developed, chiseled, and perfected it towards making it conducive to users' thinking processes. He strived to find user-friendliness in searching through a knowledge-base, be it a library, documentation centre, information centre, or knowledge centre. Guided by his five laws of library science, one can continuously tune it to a searcher's cognition. Prof. Neelameghan stressed that this conference is a timely one, bringing before an international forum some of the live problems in the organization of knowledge. He expressed happiness that many specialists have gathered to participate in this conference. He looked forward to profitable interactions in the environment and in particular now, during Ranganathan's birth centenary.

Prof. B. RAMAMURTHY, an international expert on neurology and neurosurgery, inaugurated the conference. He observed that the gathering presented an international representation of experts in the fields of computer science, classification, information retrieval, philosophy, music and education. He said: "Within the last two to three decades, a tremendous storehouse of knowledge has been created in every field of human endeavour, in the physical sciences, in the biological sciences and in all other allied fields. The tools of investigation have grown so powerful that the human race is able to perceive what was happening around distant stars, billions of years ago and can examine and understand the movement of particles inside the atom. In the biological sciences, sub-cellular biology has yielded to molecular biology, proving vital information about the origin of life and the factors that modify it. A direct beneficiary have been the neurosciences. We are now able to understand more about the intrecacies of the working human brain...." Ramamurthy further said that "The future of mankind can be different and need not blindly follow the technological and the information revolution without control over events. It has to be different if humans have to survive as masters of themselves and as leading partners of all living beings on our earth and perhaps also as partners in a cosmic scheme. It is in this context .... that young minds have to be trained in education by increasing their curiosity and by encouraging them to ask questions. Humans must be taught and encouraged to keep their minds trim by learning new techniques and taking up new challenges even in ripe old age. While they will keep the brain trim, they will not make the brain any more powerful than they are now". But he stressed also that cognition goes beyond logic and reason: "in certain states of our mind, we were told, it will be possible to acquire knowledge that eludes the power of logic and reason, beyond the intellect. They even went beyond this and asserted that the power of the mind (the brain) could be so enlarged as to encompass space and time and also achieve the capability of performing feats that appear supernatural to ordinary humans".

Prof. R. NARASIMHAN, leading expert in artificial intelligence and CMC National Fellow in Information Technology, delivered the keynote address. According to him "The real problem then is, to determine how cultural forces interact with the intrinsically structured nature of things and events in this world. The potential structuring of the mind will be constrained by the requirement that the categories we arrive at are shared by all the members of a group.... We are left with three main issues to focus on. These are:

1) How are conceptual categories mentally represented?

2) How are particular items assigned to conceptual categories?

3) How are these acquired?

Representational issues have acquired major emphasis in AI studies.... The way people represent concept categories depend on what they know. The way an expert sees the world is different from the way a novice does. This

again is an important issue of immediate relevance to information retrieval. The queryings of novices are bound to be different from those of experts. A library classification to suit the experts is bound to differ from the one intended for novices. This is a point again of relevance to the preoccupation of Ranganathan to arrive at a universal classification... In conclusion Dr. Narasimhan said: "It is not sufficient to let technology (e.g. computers) handle queries by enabling the enquirer to directly interact with a terminal which contains abstracts of books, papers and reports. A creative interface with a librarian is needed all the time to resolve query ambiguities and mismatches between queries and available classifications".

Dr. S. SATHIKH, Vice-chancellor, University of Madras, released the volume of papers entitled "Cognitive Paradigms in Knowledge Organization" and said that discussions on knowledge organization had impact on education, particularly university education. He hailed Ranganathan's contribution in this area being relevant to today's world.

Mr. YOGESHWAR, son of Dr. Ranganathan, greeted the audience and called for fruitful interactions during the conference.

Dr. I. DAHLBERG released the Ranganathan numbers of "Library Science with a Slant to Documentation".

Dr. Suseela KUMAR, President, Madras Library Association, proposed a vote of thanks.

1. Session on "Knowledge Organization".
Chair: Prof. A. Neelameghan

The impact of computer technology on knowledge representation was the theme of the very first paper by Dr.Elaine SVENONIUS. Though KR developed much before the computer came into existence, it is more widely discussed since computers came to be widely used in information systems. She examined three techniques of KR, viz.: hypertext, clustering based on common attributes, and KR using rule-based reasoning. She pleaded for exploring new KRs based on understanding how the mind processes information, and how knowledge changes (S.R.R.'s 'modes of formation of subjects'). She suggested that since new KRs have not been fully exploited the question could be raised of what KRs need to have. She predicted a combination of conventional and non-conventional KRs to emerge.

The *discussion* brought out the following points: (1) The similarity between the analytico-synthetic approach and AI; both involving breaking down a complex problem (subject) into its elements. (2) The possibility to put on hypertext specialized glossaries, as e.g. developed in the Unesco-sponsored COCTA-programme for a Conceptual Encyclopedia of the Social Sciences. (3) The possibility of building a hypertext document with features similar to those of Cutter's Syndetic Catalogue.

The second paper of this session (*Cognitive skills of the conceptualization process and types of concepts*) by SEKHAR and EKBOTE addressed the question of the cognitive process in a learning environment. A learner's prior knowledge and the information processing he is

exposed to in a learning environment (e.g. a classroom) result in new conceptual structures thus altering the cognitive structure of the learner. The authors identified thirteen cognitive skills required for effective learning. During the course of *discussion* the point was made that the skills are not only applicable in learning but can be extended to problem-solving, decision-making situations, etc. The need to have a feedback on the impact of these skills on learners was also emphasized.

Bernd FROHMANN in his paper on *Cognitive paradigms and user needs* suggested that the benefit of the cognitive viewpoint is that it permits a paradigm shift. He emphasized that in information systems there is a paradigm shift. In information systems design this shift should be to the individual user - have a 'user-centered' approach. The *discussion* of this paper raised certain important issues: (1) how clearly can we establish a relationship between an organized form of knowledge and a 'social condition'? (2) The principles and postulates of the General Theory of Classification continue to be relevant; they have been successfully and beneficially used in designing 'user centered' and 'product-centered' information systems (as against discipline-oriented information systems). Instead of analyzing documents, the postulates and principles are applied to user queries.

2. Session on "Knowledge Seeking in Libraries". Chair: I. Dahlberg

Jean Perreault's paper *Not even the voice of a ghost: Epistemology as a bridge from our bibliographical past to a new paradigm* was presented by Dr.Dahlberg. The paper deplored the fact that the present practice in searching a catalogue online is characterized by single item search, a search of terms only and seems to forget about the environment and the context of a concept, the categories into which an item is embedded which, had been duely observed in the past and especially of course in the analytico-synthetic practice of the Colon Classification. Perreault saw this as a paradigm shift which started with the results of the Cranfield experiments.

Dr. Dorothy McGARRY's paper (*Displays of bibliographic records in call number order: Functions of the displays and data elements needed*) examined features of display of records in call number searches in OPACs of several libraries. The *discussion* on this paper raised certain issues: (1) The possibility of displaying records in a call number search in chronological sequence; (2) The need for concordances between classification codes when more than one classification system/codes are used; (3) The possibility to search for the most adequate, the optimal form for such a display.

3. Session on "Knowledge Seeking in Information Retrieval". Chair: Dr.Irene Wormell.

Dr.Padmini SRINIVASAN's paper (on the theme of this session) dealt with issues relating to knowledge-based IRS. She examined the concept of 'knowledge-base' in an IRS, the type of knowledge representation, knowledge sources and depth of knowledge for K-based IRS. She

emphasized that knowledge sources is one of the least studied areas in IR. The *discussion* raised the following issues:

(1) The depth of knowledge required in knowledge-based IRS depends on a user-interface.

(2) The virtual non-availability of such systems (software) on the market suggests a wide gap between what's going on in a research lab and what is available on the market.

(3) Is it essential to have a human intermediary or is it possible to build the system so as to raise questions to extract information from the user?

Dr. Mirja IIVONEN (*Factors affecting the analysis of requests and the formulation of query statements*) presented empirical research on search formulation and examined intra-searcher and inter-searcher consistency in search formulations using 32 searches for 12 requests. The *discussion* that followed emphasized the importance of measuring consistency at the conceptual/idea level rather than 'verbal'/'term' level.

Prof. K.S. RAGHAVAN and Prof. P. SANKARALINGAM in their paper (*Multiple subject representations and cognitive searches*) examined the possibility of using 'subject-rich' data fields in bibliographic records in an OPAC such as the class number, subject string (PRECIS, POPSI) to enrich the contents of the records in a thesaurus. The paper described a CDS/ISIS Pascal interface (X-THES) for enriching the contents of a thesaurus to facilitate display of syntagmatic relations in addition to the conventional BT, NT, RT relations normally displayed in thesauri. It was proposed that this will aid the user in formulating more effective searches.

R.G. DHARMAPURIKAR's paper (*Citation analysis: An important tool for knowledge organization*) explored the application of citation analysis for mapping knowledge structures. During the *discussion* of the paper it was suggested that citation analysis maps social structures rather than knowledge structures and that citation-analysis does not lead to knowledge representations.

4. Session on "Knowledge Seeking in Problem-Solving, Decision Making and Learning Situations". Chair: Prof. E. Svenonius

Dr. Yogendra DUBEY's paper (*Modeling and simulation in the development of a decision support system for library resource sharing networks*) described a prototype system developed at the University of Pittsburgh. Dr. Prathibha UPADHYAY (*A 'path-model' in social and behavioural research*) examined the application of 'path'. The paper by Daniela D'ALOISI on *Knowledge representation in Human-Computer Interaction: A terminological representation*, presented by Dr. Giovanni ROMANO in the absence of Ms. D'Aloisi, discussed how linguistic analysis of text could be used as the basis for developing inference rules. During the *discussion* the question whether the logic used in the study, largely confined to everyday language could be extended to specialized languages too.

5. Session on "A Taxonomic Approach to Knowledge Organization". Chair: Prof. S.Parthasarathy

The question of *a permanent structure for dynamic knowledge* was raised by Mrs. Asha UMARANI in her presentation. - R.S.R. VARALAKSHNI and K. SIVAREDDY presented in their paper (*Organization of knowledge in neurological sciences - A comparative study of secondary sources*) a comparison of the classification systems used for the neurological sciences in the databases of Index Medicus and Excerpta Medica. During the *discussion* it was emphasized that the user's point of view should be taken into consideration in evaluating a secondary service. It was also mentioned that a national database for the Neurological Sciences had been developed in India already.

An interesting paper by Prof. M. PARAMESWARAN (*The Propaedia of the Encyclopedia Britannica: A conceptual model of knowledge organization*) examined the structure and contents of the classification system used in the Propaedia. The *discussion* focussed on the need to compare this classification system with encyclopaedias based on a systematic arrangement and also to examine the depth of this system in order to see whether it is in conformity with specialized encyclopaedias, such as in Anthropology, Religion, History and Geography.

Moshe YITZHAKI's paper (*The variation in informativity of research papers with time and field*) had examined the expressiveness of titles over time and disciplines. In measuring the mean number of substantive words in the titles of papers a steady increase in 'informativity' is indicated. The *discussion* referred to other measures of informativity. It was also mentioned that in the social sciences authors tend to use more "catchy" words and phrases and the terminological preciseness of the sciences is not usually present in the titles of papers in the social sciences and the humanities.

6. Session on "The Analytico-Synthetic Approach to Knowledge Organization".
Chair: Dr. Dorothy McGarry

Facet analysis in general and Ranganathan's generalized facet model in particular is now widely recognized as basic to the organization of information systems, products and services. Two papers specifically looked at this issue of applications of S.R.R.'s model and principles: Prof. A. NEELAMEGHAN's paper (*Ranganathan's generalized model of subject structure and modes of formation of subjects*) described the model and explained its utility and value in designing object-oriented non-bibliographic databases. The *discussion* raised several issues: Has there been any progress made in enlarging the principles developed by S.R. Ranganathan and in developing a hierarchy of these principles? It was mentioned that the principles can be beneficially used in presenting ideas in a text (A. Neelameghan: Presentation of ideas in a text).

Closely related to the subject was the paper presented by Dr. S. SEETHARAMA (*Cognitive approach in information consolidation*) explaining the application of S.R.R.'s model in an information analysis and consolidation pro-

duct. The users of the product, it was pointed out, received it very well. It was also mentioned that the information center at H.M.T. is using the technique to develop information products. - A third paper that explained applications of classificatory principles, though not restricted to the principles of the general theory of classification of S.R.R., was that by M.A. GOPINATH. He explored the relation between creativity and knowledge organization as a cognitive transaction. He argued that classification and knowledge organization assist creativity.

Dr.Giliola NEGRINI's paper on *Systematization of science and technology research* was very interesting being probably the first major attempt at applying the ICC-Systematifier to a subject field, here to the area of Science and Technology Research. The need to apply it to other areas was emphasized. This presentation was followed by Dr. I. DAHLBERG's paper on *The network of knowledge fields: Conceptual systematization in action*. The network is a schema of Basic Subjects and its arrangement is based on the theory of evolution. The *discussion* related to the helpfulness of the sequence of classes.

7. Session on "Cognitive Paradigms and their Application to Knowledge Organization".
Chair: Dr. Erich Weihs

This session was devoted to knowledge organization in particular fields/areas. Suneeti RAO's paper (*Representing knowledge through legal concepts*) sought to highlight the frequent changes in the meaning and denotation of legal terminology and the near impossibility of permanently defining legal concepts. - Joseph BUSCH's paper (*Use of a relational database system to model the variability of historical source information*) treated a Getty system project on the design of an information system for the history of the arts intended to be used directly by art historians (without information intermediaries). He examined at length the requirements of information system design in the areas and described the establishment of relationships between an object, the historical events with which it is associated and the corresponding historical evidence, descriptive objects and related objects, and building these relationships into the information system to enable a user to navigate through the database. Interestingly, the information system led to scholarly discoveries and investigations through connections which could not be made in the original physical archives during many years of researching.

Gerhard RAHMSTORF's paper (*Conceptual representations based on natural language phrases*) presented a technique of analyzing meanings of natural language phrases defining technical terms. This was used as the basis for generating conceptual representations leading to a semantic thesaurus. The problems were *discussed* which may be posed by different phrases to be formed with the same content and in handling prepositions which may completely alter the meaning of a phrase.

C.S.KRISHNAMURTHY's paper (*The use of a paradigm in the classification of melodic scales*) explained the 'Mela' scheme of classification of Carnatic Music. -

Mamota DAS' paper (*Learning teaching cognitive paradigms in knowledge organization*) focussed on the need for comprehension in learning rather than mediation of information.

8. Session on "Cognitive Paradigms in Knowledge Base". Chair: Prof.M.A.Gopinath
The need to develop online IR systems that are more user friendly and that do not require a user to learn how to use computers was emphasized by Dr.Giovanni ROMANO. His paper (*An intelligent documentation system*) presented an architecture for an Intelligent Help System (IHS) based on AI that will advise the user about the method of forming his/her problem and try to extend a user's knowledge. The implications of developments in information technology for design of text retrieval systems was the subject of the paper by Erich WEIHS (*On the client-server concept of text related data*). An understanding of the nature and notions of 'information' is central to the design of information systems. Prof. Emilia CURRAS' paper (*Information Science - information as a dialectic interactive system*) explored the definitions of 'information' and the dialectics of the interrelation between 'information' and 'information science'.

9. Valedictory Session
The 2nd International ISKO Conference concluded with a valedictory session chaired by Prof. A. NEELAMEGHAN. Prof. Eric de GROLIER presented a summary of the proceedings. To de Grolier the impact of technology on the nature of research and the papers presented in the conference was evident although he would have liked to see papers reporting on progress in the General Theory of Classification since Ranganathan. He observed that the papers "more or less exactly distributed into two parts: one half Indian and the other half outside India". He classified the papers into the following categories
1. Introduction (3 papers)
2. Description and criticism of existing schemes
     (12 papers)
3. Proposals for new schemes (10 papers)
4. Analytic studies and models (7 papers)
5. Experimental studies (3 papers)
6. Hypotheses (3 papers).
In his concluding remarks he said: "I think that this conference was a successful one - all my admiration and gratitude to the organizers of this conference. They have been successful in bringing together a mixture of people coming from, I think, a dozen of countries. They are drawn from different fields, from different specializations, and gathering them for discussing the most important social field which is information retrieval systems and knowledge organization in general and knowledge classification and ordering in particular. And for this we must be grateful to the organizers. The pre-conference volume which includes all the papers - a feature which I have never seen, even Ingetraut Dahlberg was not able to present all the papers. It is wonderful! Thank you".
The success of any conference is in its delegates and their

active participation in the deliberations. The participants of the 2nd International ISKO Conference fulfilled their roles in an excellent manner.

The Conference came to a close with a vote of thanks from Prof. K.S. RAGHAVAN and Dr.I. DAHLBERG followed by concluding remarks from Prof. A. NEELAMEGHAN and Prof. S. PARTHASARATHY.

A brief **summarization of results** of this conference is presented in the following suggestions.

1. The intellectual abilities in the creation and organization of knowledge could be harmonized in a more efficient manner if knowledge representations could simulate cognitive processes or sensory perceptions.

2. Computer communication systems have shown resilience and trends to collectively and coherently organize knowledge for efficient and quick retrieval.

3. Interactive information modeling facilities are capable of providing models of presentation of knowledge. Such a modeling can lead cognitively towards relevance and thereby propel the assimilation process.

4. The cognitive approach towards learning, understanding, problem-solving and presenting knowledge can be achieved using an analytico-synthetic approach. The individual (end) user can model interactively the knowledge-base organized in the memory of a system. This leads to cognitive paradigms.

5. The searchers of information - the seeker of knowledge in essence - can converse at different levels with the knowledge-base of a system to cognitively develop helpful and relevant knowledge for his momentary needs.

6. Experimental studies on the performance of online databases, interactive information systems, knowledge-base systems, decision-support systems, and decision systems have shown that the hardware and software system have a degree of resilience which can simulate cognitive processes of the human mind.

7. The development of the OPAC as a bibliographical search tool has gone a long way producing alternative models of presentation as a spectrum for the cognitive process in searching, that is, to help purposive browsing.

8. The interdisciplinary interaction relevant to the processes emerges in the form of cognitive science, which is the summum bonum of Psychology, Linguistics, Computer Science, Artificial Intelligence, Cluster Analysis, and Information Science. The sub-domains of this interaction can be named as neuroscience, neuropsychology, brain function analysis, computer informative analysis, logical epistemology, social epistemology, information processing and organization, information user modeling, and computer communication displays.

9. Ranganathan's theory of classification and organization of knowledge can provide cognitive paradigms. The modern developments in computer science and artificial intelligence can utilize them.

10. The efforts of all these should lead to a better, faster, and an easier assimilation of knowledge for beneficial use in society.

A volume of 466 pages of conference proceedings presents many more such suggestions helpful to knowledge-base developers, information retrieval system developers and managers. The contributors are: Svenonius (USA), Sekhar & Ekbote (India), Sukiasyan (Russia), Frohmann (Canada), Perreault (USA), McGarry (USA), Srinivasan (USA), Amba & Hemalatha Iyer (USA), Dharmapurikar (India), Iivonen (Finland), Raghavan & Sankaralingam (India), Hölzl (Austria), Novak (Croatia), Dubey (India), Upadhay (India), D'Aloisi (Italy), Wahlin (Sweden), Umarani (India), Ramadas & Nair (India) Sivareddy & Varalakshmi (India), Parameswaran (India) Neelameghan (India), Seetharama (India), Negrini (Italy), Gangemi/Glanti/Galeassi/Rossi Mori (Italy), Dahlberg (Germany), Suneeti Rao (India), Rahmstorf (Germany), Krishnamoorthy (India), Mamota Das (India), Gopinath (India), Yitzhaki (Israel), Busch (USA), Curras (Spain), Shrivastava (India) Romano (Italy), Weihs (Germany), Satija (India).

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Editors Note: We should like to refer the reader to the Advertisement of the Proceedings volume mentioned here on p.209 of this issue.

In the following we quote some sentences from the **Introduction** of this volume (with the kind permission of the publisher):

"Cognitive paradigms indicate the knowledge seeking behaviour of individuals and groups of individuals. It is a nascent state of the human mind wherein a kind of gap in its knowledge structure occurs and the mind searches for a connection through its external environment... Knowledge is a human resource which has the ability to consolidate the valuable results of human thinking and civilization through different times. It is the totality of understanding of nature and its features for an improved quality of life of human society. Because of this reason and because of the innate human curiosity there is a continuous process of cultivation of the human mind for increasing knowledge.... Knowledge organization is an essential factor in helping an inquirer to get required outputs. Thus the human society has to focus on ways and means of organizing knowlege in a productive manner in spite of its incessant growth. In this conntext we should know that knowledge itself has no form or shape of its own. The structuring of knowledge should be in consonance with the needs of human society....

While taxonomic organization of knowledge is a necessity, the number of objects, events, and their complexities in this world appear, at phenomenal level, as different, and this calls for a unique organization of these objects, event, etc. If one tackles this issue directly one may not be able to solve it easily and the very factors which one wants to organize may lead to chaos rather than to order. It is here that the scientific method begins to operate. The numerous complex details are reduced to a few fundamental parameters devoid of details. They indicate a kind of simplicity in their relation and help understanding the patterns which may occur differently in different environments..."