Guest Editorial

Knowledge Organization – An Evolutionary Perspective

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Clare Beghtol, elected President of ISKO at the 5th International ISKO conference held in Lille, with her Hanne Albrechtsen and others, advocate the accommodation of viewpoints in knowledge organization to enable an examination of *"every intellectual landscape from the vantage point of its own perspective"*. It is also helpful to turn this round and examine the subject of knowledge organisation itself from different perspectives, in this case from a perspective of evolution.

The impact of biological processes on our evolution is now insignificant when compared with that of processes involving the organisation and use of knowledge. Commenting on the evolution of language Richard Dawkins (1998) writes *"The selection pressure on genes will never be the same again. The genes find themselves in a world that is more dramatically different than if an ice age had suddenly struck or some terrible new predator had suddenly arrived in the land."*

Tools for the recording of language provided another evolutionary leap, bringing with them an independence of space and time. The significance of the invention of writing using marks in clay tablets was captured by David Attenborough (1979). *"When that tablet was baked, men turned the surge of evolution into a new course. Now an individual had a means of conveying information to others in a way that was independent of his presence or indeed of his continued existence... Today, our libraries, the descendants of those mud tablets, ... can be seen as extra-corporeal DNA, adjuncts to our genetical inheritance as important and influential in determining the way we behave as the chromosomes in our tissues are in determining the physical shape of our bodies."*

Life is characterised as continuous change, and it is fitting that the next International ISKO conference, to be held in Toronto in the year 2000, will examine dynamics in knowledge organisation.

Dynamics have been central to the study of a new science of complexity. Waldrop (1992), in an entertaining account of research under this heading, reports on efforts to examine evolutionary models using computer programs which simulate the behaviour of self-organising entities and communities (species), reflecting evolutionary forces and interaction that promote both order and chaos.

"When the system is deep in the chaotic regime, then almost nobody is standing still... When the system is deep in the ordered regime, conversely, then almost everyone is locked into an equilibrium... When the system is at phase transition, of course, order and chaos are in balance. And fittingly enough, the display seems to pulse with life. Parts of the ecosystem are forever hitting equilibrium ..., while other parts are forever twinkling ... as they find new ways to evolve. Waves of change wash across the screen on all size scales – including the occasional huge wave that spontaneously washes across the screen and transforms the ecosystem beyond all recognition."

What implications does this have for Knowledge Organisation?

For the day to day requirements of most users, the information store should be more dynamic than it is now. There is a significant cost in referencing out-of-date information, and sources must change to reflect the current state of knowledge. This is easy to say but much harder to do when, to a large extent, publishing is still a batch process (even on the World Wide Web). Having created the large physical spaces to hold books, we must recognise that future investment has to focus on digital libraries and the much larger conceptual space for holding knowledge components.

Libraries of books are the dinosaurs of knowledge organisation in our evolution (and I enjoy having these dinosaurs around!). Information technology offers the prospect of knowledge transfer via electronic landscapes more closely related to the real world to enhance the learning experience. Our task is to apply knowledge organisation in building these landscapes, using well-founded principles of structure and rela-

tionship. We must, like Kim Veltman (1997), push forward the frontiers of conceptual navigation but be aware that our goal is not necessarily to increase the volume of knowledge acquired by each individual, as the example below will make clear.

Information systems should survive or expire according to their relative performance, but, as Henry Burger (1997) makes clear, the progress of good ideas, and as a consequence the progress to better information systems, is not without observable difficulty. The consequences of a persistent failure to apply good ideas in Medicine is particularly tragic. This issue was explored by Larry Weed in the keynote address at the Medical Informatics conference *Grand Challenges for Research and Practice* held at Manchester University from 16th-17th June 1998. Professor Weed is an advocate of Knowledge Coupling to improve clinical care (Weed 1991).

In a very dynamic presentation, "Clinical Judgement Revisited", Weed shared his conclusion that our systems for the effective transfer and application of the requisite knowledge for clinical decision-making were fundamentally defective. These include our systems of education, maintained through the vested interest of the medical profession to the detriment of the patient. The following review of an earlier presentation (found on the WWW) encapsulates Weeds message:

"Discussing the nature of medical school, he criticizes a system founded on the premise that "the best way to put knowledge in a person's head is to send him or her to medical school," and cites studies that reveal students learn only a fraction of what they need, and what they do learn, they don't retain. "A physician can't gather information, digest it, weave it on the fly and then say "In my opinion...," declares Weed. "Processing information is difficult and doctors have to process massive amounts of information every twenty minutes. How can we expect them to do that?" ... The technology allows physicians to focus on gathering information rather than memorizing massive amounts of facts. "We don't ask people to go to school for eight years before they use the highway system," says Weed. "The information is contained in the system itself, so all we need to learn is a few general principles such as how to read signs and make turns. If we navigated the way we practice medicine, we would have a person who specialized in the town of Scranton and would charge $180 to guide you from the church to the drugstore."

The problem is in changing the system and helping it to evolve. The work of ISKO, evidenced in the Lille conference, with the legacy of Ranganathan's ideas and the continuing efforts of the Classification Research Group, are key to that evolution in the digital age we find ourselves in, but we need to plant our ideas in the most fertile sites to accelerate the evolution.

References

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Note from the Editor

I am pleased to introduce our latest member of the Editorial Board. Michèle Hudon is now our permanent book-review editor. Professor Hudon is assistant professor at the École de bibliothéconomie et des sciences de l'information, Université de Montréal, Canada. She teaches in the areas of descriptive cataloguing, classification, and indexing. She holds a Ph.D. from the Faculty of Information Studies, University of Toronto, and her main research interests include thesaurus (both monolingual and multilingual) design and application in new information-transfer environments. She has been a member of ISKO since 1992. Please send book reviews directly to her at michele.hudon@umontreal.ca

Also, I wish to thank Dr. Ingetraut Dahlberg for serving this last year as the Acting Book-Review Editor.

Charles Gilreath