The only regret is that the book suddenly stops here without a more detailed description of the "Proposal"; but by now we all know that Mr. Serrai is not to be expected to provide detailed investigations nor abundant exemplifications; we must thank him for his light-shedding intuitions and for the way in which he spurs our intellectual laziness, thus punishing our widespread tendency to degrade our professionality by mechanically applying, in a tiresome routine, acritically accepted procedures.

Maria Cochetti

BSO Broad System of Ordering: Schedule and Index. Third Revision, Prepared by the FID/BSO Panel (Eric Coates, Geoffrey Lloyd, and Dusan Simandl). The Hague: Fédération Internationale de Documentation and the United Nations Educational, Scientific and Cultural Organization 1978. xiv + 102 + 82 p. (FID Publication 564) ISBN 92-66-00564-9.

The BSO Manual: the Development, Rationale, and Use of the Broad System of Ordering. Prepared by the FID/BSO Panel (Eric Coates, Geoffrey Lloyd, and Dusan Simandl). The Hague: Fédération Internationale de Documentation 1979, 157 p. (FID Publication 580) ISBN 92-66-00580-0.

On reading the Manual to the third revision of the *Broad System of Ordering* (BSO), one is distressed that the time and talent of so many distinguished classificationists could have been spent on such an ill-defined project. Why undertake design of a language to meet undefined needs of a hypothetical network of information centers whose users, purposes, and operations are envisioned in the vaguest of terms? To this reviewer, who had no involvement with the project and has the benefit of ten years hind-sight on its beginnings, it seems a dubious enterprise. An indexing language is a solution to a particular set of information problems. It can only be designed and evaluated in a framework, whether the setting be that which produced it or another for which its suitability is being considered. Indeed, to judge by the occasionally apologetic tone of the *BSO Manual*, the panel that prepared it were painfully aware of the vacuum in which they operated and the problems that vacuum created.

The *Manual* includes the origins and history of the project. Briefly, the BSO was the ultimate product, after many metamorphoses, of an attempt to identify or design a switching language for use in scientific information exchange. Switching languages have been investigated as a solution to the problems that lack of standardization in subject description cause in search. Users, whether information specialists or their clients, are forced to formulate separate queries and search strategies for each data base or tool searched – a time consuming and arduous job. A switching language is a common vocabulary into which, in theory, all other systems can be translated by their constructors or users for purposes of networking and international exchange. The first step toward the BSO was the formation in 1967, by the International Council of Scientific Unions (ICSU) and Unesco, of a study group to consider whether any existing classification or indexing language could be used for switching purposes. The Aslib Research Department undertook the study, with negative results. According to the Manual, they complained at the time about the lack of definition of the requirements for the language.

By 1972, the thrust of the study had changed. With Unesco support, the Fédération Internationale de Documentation (FID), the parent body of the Universal Decimal Classification (UDC), set up a Working Group to undertake the less ambitious project of devising a "broad subject ordering scheme intended to function as

a) a tool for interconnection of information systems, services and centers
b) a tool for tagging (i.e. shallow indexing)
c) a referral tool for identification and location of all kinds of information sources and services."

This charge is very unspecific. Operationally, what resulted was a scheme with detail suitable for indexing secondary information sources, rather than documents. But such an operational definition is a statement of scope, not purpose. One can assess the inclusiveness of the scheme on this basis, but not its appropriateness for any particular application. Moreover, there is no analysis of the particular problems of indexing secondary sources or organizations over and above the demanding problem of determining the suitable level of depth and detail for the scheme. For example, at the testing stage it was found that indexers sometimes used the place facet for the country of origin of the tool (e.g. Britain as place in indexing the *British Technology Index*). It was inferred that origin was therefore a useful facet, and it was added as an option. Are there, however, other similar searchable features, such as date of coverage or language of publication, that would also be useful? Should any of this information, usually considered to be in the domain of descriptive cataloging, be carried in the subject notation? Without a known population of users these questions cannot be answered, and for the most part, they apparently were not asked.

The issue of lack of user orientation is most forcefully evident in the "test" of the second edition of the BSO. Sample entries from several organizational directories and guides to secondary sources were sent to volunteers to be indexed. The criteria for success in the field test was achieving a "high" level of indexer consistency, on the grounds that this particular characteristic was important to a switching language (which the BSO no longer was in any original sense of the term). The matching algorithm needed at least the usual degree of painful elaboration, and, as is typical, the consistency found was not very high. After certain additions were made, however, to take account of improvements to be introduced in the third (current) edition, it was predicted that consistency could be as high as 70%. In a leap that left this reviewer speechless, this figure was then taken as being indicative of a possible performance of 70% recall in an operating system. No comparisons were made with any other scheme. If proof were needed that a system cannot be assessed *in vacuo*, it is amply supplied by this exercise. Although the trial did provide information to the panel about indexer's reactions to the scheme, it is meaningless as the performance test it purports to be.

Despite all the negative things to be said about the process, there are positive things to be said about the

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product if it is viewed simply as a high level, general classification scheme. The *Manual*, which is a commendable addition, is well written and clear. It deals straightforwardly with the project's difficulties, goals, decisions, and procedures. Its directions for use of the scheme are easy to interpret and follow; however, some degree of sophistication in classification theory on the reader's part is necessary.

The scheme itself is modern in its flexible notation, moderate synthetic properties, and careful structure and faceting. It also has facilities for handling materials dealing with discussions of phenomena outside the structure of a discipline. For instance, the succession of topics reflects integrated level theory as explored by the Classification Research Group. Careful attention has been paid to placement of technologies with respect to the sciences on which they depend. Synthesis is allowed between any two class numbers, but the permissable relations are more restricted than in UDC. Careful scheduling generally allows the principle of inversion to determine combination order. Exceptions are carefully spelled out and grounded in theory. The combination provisions work because of the use of "implicit" faceting. Under this method, all subdivisions of topics are listed according to the following pattern:

1) Tools or equipment for carrying operations
2) Operations (i.e. purposive activities by people)
3) Processes, interactions
4) Parts, subsystems of objects of action or study, or of products
5) Objects of action or study, or products, or total systems.

When reversed, the pattern produces the standard facet combination order and also a clear order of precedence among aspects, should one wish to select, rather than combine, facets. The pattern, beginning with operations is clearly visible in the following example:

745 WATER TRANSPORT TECHNOLOGY AND SERVICES;

- ,05 Environmental, safety and rescue aspects of water transport Expand like 740,05, e.g.
  - ,86 Water traffic safety and accident prevention
  - ,88 Water transport rescue and salvage
- ,20 Water transport services
- ,26 Merchant shipping, freight and cargo services
- ,28 Passenger shipping, services and lines
- ,30 Water traffic and shipping control (incl. channel marking and signalling)
- ,35 Ship operation
- ,36 Navigation (sea and inland water)
- ,40 Ship and boat technology (both sea and inland water craft)
- ,42 Ship and boat design (= Naval architecture)
- ,43 Shipbuilding and Boatbuilding
- ,45 Marine engineering (both sea and inland water craft)
- ,47 Ship propulsion systems
- ,50 Surface craft (For navel craft, warships, see 764,50)
- ,52 Smallboats (incl. canoes, rowboats, and dinghies)
- ,53 Yachts (incl. sailers and motor-sailers)
- ,54 Sailing ships (incl. schooners, barques and brigs)
- ,55 Motor vessels (incl. large motor launches)
- ,58 Hydrofoil craft
- ,59 Underwater craft (incl. bathyscaphes and bathyspheres) (For navel submarines, see 764,56)

Classes 745,42,43, and 45 are operations.
Class 745,47 is a subsystem and classes 745,52–59 are products or objects of study.

The notation is flexible and expandable. It consists of three numbers, which can be divided by sets of two numbers, set off by commas, e.g. 867,78,47. In addition a "–" is used for combining the Time and Place facets, which may be used freely after either three or two number groups. Letters are also used for such lists as artists and countries, and "0" is the indicator reserved for combinations of scheduled numbers. Finally, as in Bliss, provision is made for concretes outside the discipline classes by the optional use of section 088. A general work on energy, for instance, would be classed in 088,212, where 212 is the number for energy from the physics schedules. This device is helpful in dealing with multi-disciplinary, mission oriented, materials.

However, the use of implied, rather than explicit faceting, lack of fully expressive notation, reliance on literary warrant, and the overall generality of the scheme occasionally combine to produce some unfortunate (if atypical) results, such as the following section from the Music schedules.

951 MUSIC
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- ,30 Musical styles and genres
- ,32 Primitive music
- ,35 Oriental classical music
- ,40 Western (esp. European) music
- ,48 Modern music (incl. atonal and twelve-note music)
- ,52 Folk and traditional music
- ,54 Popular music (incl. jazz, swing and 'pop' music)
- ,56 Classical music
- ,61 Sacred, religious music
- ,63 Concert music (For theatre music, see 955–951)
- ,65 Dance music
- ,67 Programme music

The *Manual* and the schedules together have considerable potential move as a tool for teaching modern principles of classification. The clarity of the explanations in the Manual and the compactness of the scheme make it very attractive for that purpose. Nonetheless, didactic use alone cannot justify the amount of labor represented by the BSO. At present it appears to be a scheme in search of a purpose. No doubt it will need some modification for whatever use it is put to eventually. Also, although there is emphasis in the *Manual* on the design of a scheme that can be easily updated, the future of the scheme in that respect is not mentioned. We now have a new general classification scheme, if a very abridged one, but the question remains, will it find a user?

Irene L. Travis

MICEVIC, A. T.: **Methodische Grundlagen der Untersuchung wissenschaftlicher Informationsströme.** (Methogological foundations for the investigation of scientific and technical information flows.) (In German). Leipzig: VEB Bibliographisches Institut 1979. 162 p., 18,– M (GDR)

Das hier zu besprechende Buch ist einem größeren Werk der Verfasserin entnommen, das in russisch die automatische Projektierung behandelt. Sie widmet den wissenschaftlich-technischen Informationsströmen deshalb besondere Aufmerksamkeit, weil bei den immer kompli-

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