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Concerning General and Special Classifications

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The experience of the British Classification Research Group (CRG) suggests that a good general scheme could be compiled by integrating specialist schemes. Examples are given from the 1990 revision of Class J Education of the Bliss Bibliographic Classification. Sequences in arrays may need adjustment to suit different needs, but a general, or "Ur-Classification" will provide a reservoir of terms for specialist schemes, while the special schemes provide detailed analysis and enumeration by experts in each field. A fraction of money spent on new library buildings would enable the compilation of such a general scheme, which could well be based on the BC2 edition of Bliss B.C. (Author)

1. Construction of a General Scheme from Special Ones?

At the Darmstadt Conference of ISKO, Eric de GROLIER expressed the view that a general scheme of classification could not properly be constructed from a set of schemes made for specialist subjects and purposes. He thought that the aspects and emphases were very different, even incompatible, while the depth of detail required by special schemes interfered with the practical purpose of a general scheme, which is to produce a sensible and helpful arrangement of books on library shelves.

This view does not altogether agree with the experience of the British Classification Research Group, which made many special schemes in the 1950s, and which has been conducting detailed discussions on revising classes of H.E.Bliss's Bibliographic Classification, now in course of publication by Bowker-Saur, formerly Butterworths. In every case, we found that, however detailed the analysis required by the core concepts of each subject area, the real problems emerged when we were dealing with the related or "marginal" fields. It seemed that, no matter how apparently specialised each of our subjects might appear to be, we were invariably led to the conclusion that what we lacked was a good source of these related terms, so that we were obliged to draw up schedules for areas with which we were less closely acquainted. Fortunately, we had by that time a good knowledge of Ranganathan's technique of facet analysis, which provided clear guidance, not only on the method of sub-dividing the core schedules, but also for dealing with marginal fields to some extent, for example with his principles of "rounds and levels".

2. The Idea of an Ur-Classification

In the late 1950s, mainly through the work of Barbara KYLE in the wider area of the social sciences, we pursued the idea of a sort of "Ur-classification", a generalised scheme of terms not necessarily related to anyone practical application in a library or documentation centre. The origins of all these ideas were first announced to the world at the 1957 "Dorking Conference" - The First International Study Conference on Classification for Information Retrieval, convened by Aslib for the Classification Research Group, the CRG (1).

A serious problem soon emerged. In such an Ur-classification, some principle would be needed for determining the sequence of all the concepts in the scheme, which would express their relationships with each other. In the days before widespread use of computers, these concepts could not be left lying around like peas in a bag; even alphabetical order would be better than that, though unsuitable for an international scheme, which we hoped ours would be. Apart from the simple problem of retrieving each one from the mass, such a confused mixture would fail to do exactly what an Ur-classification should do, namely, demonstrate relationships arising from intrinsic characteristics. Alphabetical order was not much better than no order at all, because what we were seeking was international understanding of the scheme's structure. Looking at the popular general schemes offered no particular help. Dewey and the UDC hardly attempted to recognise the problem; Ranganathan considered that Main classes and their sequence simply had to be postulated. Only James Duff Brown in England offered the sequence Matter, Life, Mind Record - a sensible suggestion - while Bliss, a lone voice in the USA, came up with "the scientific and educational consensus".

3. The Necessity of a Unifying Theory

None of these offered a truly satisfactory answer. The first step in this search for a unifying theory came from Joseph Needham's 1937 Herbert Spencer lecture, "Integrative levels: a revaluation of the idea of progress" (2). Our discussions of this theory were long and full of

argument, a process quite familiar to the CRG!

D.W.LANGRIDGE, for example, protested that such a system might well do for ordering the sciences, but was irrelevant to at least some of the social sciences and positively anathema to the humanities - a point of view which he has succeeded in maintaining to this day. But it soon became clear, to some of us at least, that the theory played an important part in the even more general approach to the philosophy of knowledge, as developed particularly by Ludwig von Bertalanffy, Erwin Laszlo, and Kenneth Boulding (3, 4), as General System Theory.

4. The Bliss Classification as a Practical Help

These philosophers and scientists did not apply their ideas to documentary classifications, but an opportunity came to the CRG in the revision of the Bliss BC, under the editorship of Jack MILLS and Vanda BROUGHTON, of which the first two fascicules were published in 1977: Introduction and Auxiliary Schedules, and Class J Education. Other classes have followed at more or less regular intervals, eight so far, with two more due out shortly. Many improvements in style and presentation are constantly being made, and suggestions from CRG discussions often find application in succeeding classes. In addition, the original version of the new Class J had become out of print, and since it continued to be in demand, it was thought useful to bring out a second revision, which was published in December 1990 (5). In all these revisions, the avowed intention, which was that of Bliss himself, is to construct schedules capable of indexing even the most detailed documents and the most specific subjects.

5. The Example from the Bliss Subject Group "Education"

The subject "Education" presents an interesting set of problems for depth classification. On the one hand, it can be considered as the most all-pervasive of subjects, since every subject has to be learned by someone if it is to survive, and therefore may be taught; equally many aspects of personal and social life have a direct influence on the educational process: psychology, social welfare, economics, management, etc. On the other hand, there are very few concepts that can be considered as wholly specific to Education, as its "core facets". Thus this field is particularly useful as an example of the relationship between a general and a special classification scheme.

In identifying the core facets, we are immediately confronted by the problem. The concept of the "learner", the person to be educated, the "educand" can be regarded as specific to Education, indeed the primary facet, the reason for the existence of all the other facets, the "Personality" in Ranganathan's terminology. Now every category of person can also be regarded as a potential educand, not only children; we find documents dealing with the education of adults, housewives, policemen, illiterates, the deaf and the blind. Even some animals can be taught, though not everyone would perhaps agree that this is properly called "education". But the general category of "person" is by no means specific to Education, and a detailed schedule of persons will be needed in other class schedules. An Ur-classification would certainly be expected to contain such a schedule. But how would such a schedule be ordered?

6. The "Unique Definition" Place

During the CRG's discussions on Integrative Levels, Jason FARRADANE came up with the fruitful thesis that in a series of such levels, a concept term should be assigned to its place of "unique definition". That means, at a place in the sequence where sufficient concepts have already made an appearance to describe it completely, without introducing any other concepts even though they may often be associated with the term being assigned. Fewer concepts would be insufficient for such a unique defmition, more would be superfluous.

In this scheme of Integrative levels, types of persons would be exhaustively enumerated at the level of Human Biology, and would not have to wait until the level of Education. But the concept "educand", though narrower in extension than the concept "person" by virtue of its relation to one particular type of human context, nevertheless requires the "person" schedule in order to ensure that no potential "educand" will be left out of the Education schedule. Education can benefit from the expertise of the human biologists to ensure that the person schedule is complete, and need not be enumerated again in the Education schedule.

7. Problems

This seems simple and indeed obvious. The problem, of course, is that certain classes of persons acquire new characteristics and new relationships when they are transformed into educands. Some of them have a specific effect on the education process because they require specific methods of teaching and learning - blind persons, prisoners, persons with unusual mental characteristics, high as well as low; and so on. An arrangement helpful to users of educational documentation will not necessarily coincide with the arrangement determined by the human biologists for their sequence at their level of unique definition. In fact, most of the particular characteristics in education arise from non-biological contexts - the prisoners, and housewives, for example.

8. The "Lucky dip" Approach

The solution offered by Class J 1990 can be described as the "lucky dip" approach. this consists of borrowing to the greatest possible extent from other classes, but not always taking over complete arrays from one and the same class, in cases where the same or similar categories of persons appear more than once. In the facet "JV Special categories of educand, exceptional persons, special

education", we find the following arrays, with their borrowing instructions; the notation is not expressive or co-extensive with the level of subdivision:

JVC Religious groups
*Add to JVC letters G/V following P in PG/PV in Class P Religion, e.g. Roman Catholics JVC R

JVC Z Disadvantaged persons (general), Compensatory education
*Persons unable to take advantage of normal education facilities.
*For mentally or physically handicapped see JVJ

JVE Socially disadvantaged
JVE A * Add to JVE A letters A/V following J.
JVE H Minority groups (general)
JVE M Immigrants
*Add to JVE M letters B/S following KOU in Class K, e.g.:
MB Allogens
*First generation immigrants
ME Guest workers
MJ Expatriates

By political/civil status
JVE V Refugees, displaced persons
* For refugees from natural and other disasters, see JVH GN
JVE WB Evacuees

Other occupational factors
*Add to JVE W letters E/M following KO in Class K, e.g.:
JVE WEW Retired persons, pensioners
WFK H Commuters
WM Unemployed

JVF By country
* Add to JVF letters A/Z from Auxiliary Schedule 2.
JVG W By language
* Add to JVG W letters A/Z from Auxiliary Schedule 3

JVH Background handicapped, persons with special social family and home conditions
* Add to JVH letters G/JKS and K/L following Q in Class Q. A selection of the most prominent classes is given for convenience.

By effects of emergencies - disasters
JVH GKW Persons at risk
GNG Refugees
GNJ Evacuees
GOT Victims of famine

By effects of social conditions
GP Deprived persons
GV Poor persons
GVX Beggars, destitutes
HH Homeless, waifs, strays
JC Lonely persons

K By family background
KT One-person families, single parent families

JVJ Mentally or physically handicapped
JVO M Disturbed, mentally ill (general)

Persons with specific disorders
JVO P/Q
* Add to JVO letters P/Q following IU in IUP/IUQ in Class I, e.g. Language disordered, verbal communication disorder in general JVO Q

JVP B Aphasic
* Add to JVP letters B/V following IUR in IUR B/IUR V, e.g.,
Word blind JVP F
Dyslexic, reading disorder JVP G
Writing disorder JVP H
Stammerers JP S

JVQ Disorders of other psychol. processes
* Add to JVG letters S/Y following IU in IUS/IUY, e.g. Autistic persons JVQ Y.

9. Using the Borrowing Technique

The following excerpts show the technique of borrowing from several arrays in other Main Classes to make one which suits educational needs.

JCP AQ Management of personnel
* Add to JCP letters B/U following TU in Class TQ Management

JDU G Kinship and family and sex relations
* Add to JDU letters G/Y following KP in Class K Society

JDW B Human biological factors
* These factors, together with those of health and medicine following, are all taken from Class H Health Sciences

JEN Social psychology, social behaviour
* Add to JE letters N/Q following I in IN/IQ in Class I Psychology

JEP Special forms of behaviour
* Add to JEP letters B/X following KF in KFB/KFY and letters G/HX following K in KG/KHX in Class K Society.

This borrowing technique has several advantages. In the first place it reduces the size and therefore the cost of the schedules, by reducing the number of terms acutally enumerated. It provides references to other classes which are being revised by experts in those fields, who may also be charged with keeping their classes up to date with additions published in the *Bliss Classification Bulletin*, which appears at frequent intervals. It provides guidance in using the technique of facet analysis for subdivision to any depth required by specialist documentation. As the above examples demonstrate, it enables the reviser to pick and choose from any part of another class to suit the special viewpoints of the class being revised.

10. Objections?

It may be argued that this evidence does not justify BC2 as a genuine Ur-classification, simply because Class J is already a part of BC2 itself, and uses the same notation and system of arrangement, not to mention its basis in facet analysis.

To deal with the last objection first. It is my view, based on experience in constructing half a dozen special schemes, and it is also the view of the CRG, whose other

members have likewise made many schemes themselves, that any scheme of classification which claims to cope with the complexities of modern documentation must be based on facet analysis, with its closely disciplined rules for structure; this can also be demonstrated to be true for the construction of a thesaurus, as will be confirmed by reference to almost any issue of *International Classification.*

11. Another Example

To answer the main objection, let me now turn to another special scheme, for a subject which may well come as something of a surprise to readers of *IC*, namely Cricket. This game has already been adduced by D.W.LANGRIDGE in his book, *Classification and Indexing in the Humanities*. The international Headquarters of Cricket is at the Marylebone Cricket Club's Lord's Ground in northwest London, where there is a unique Library, Museum and Art Gallery with many thousands of books, pictures and artifacts relating to the game, many of them by famous names. Cricket and its documentation, in fact, exhibit all the criteria usually advanced as evidence of the existence of a regular "subject": a formal system of teaching and research, societies at the international level devoted to the study of the subject and practice of the art, learned and popular journals publishing research, libraries and museums specialising in the subject, of which the one at Lord's is the largest. A programme to computerise the indexing of the collections, particularly of the pictures and artifacts, has necessitated the construction of a thesaurus/classification. The detail required may be judged by the fact that it contains more than 100 terms relating to the art of batting alone. This is not only true for journal articles; it is even more so for the pictures and the artifacts. One needs to distinguish, for example, between two 17th century porcelain figurines, one of which holds a bat, the other a ball; one needs to be able to index accurately a picture of which the subject is a well-known 19th century Captain of the England team, in the act of making a catch to dismiss an opponent. For teaching purposes, one needs to retrieve film or tape exhibiting a particular skill of fault. There are maps, architect's drawings, fiction, poetry, songs, even operettas about this game. The subjects covers all the major branches of the social sciences: social aspects, economic aspects, fitness and health, management, ethics, aesthetics, history, biography. In making this classification, therefore, the schedules for some of these classes have been taken from the various appropriate sections of BC2, and the exercise presented no particularly difficult problems.

Thus Arts and Crafts contains the following:

- Arts and Crafts
  - The collection
    - Care and preservation
  - Collecting
    - Identification
      - Marks,monograms, insignia
  - Economics, buying and selling
  - Subjects in Art
    - Cricketers in art
    - Grounds in art
  - Visual arts
    - Architecture
      - Listed buildings
        - Lord's Pavilion
  - Plastic arts
    - Ceramic materials, Porcelain
    - Stone
    - Metal
    - Bone, ivory

These and many others in the same facet are taken from a first draft of the revised Class W from BC2. Similarly, the Economics facet contains terms relating to the Workforce, Players and Administrators, the Administration of Clubs and their property such as the Grounds; there is a facet dealing with the technical aspects of Grounds and Groundsmanship.

The saving of time, and the confidence which comes from the knowledge that one is using schedules compiled by subject and library experts in those areas of this subject, which also apply to many others, have confirmed me in the view which I came to hold many years ago from the earlier experience in compiling special schemes. I believe, further, that this type of integration of general/special has relevance for the construction of what Eric de GROLIIER calls a "Metathesaurus BDF", which would appear to resemble the CRG's idea of an Ur-classification.

This view surely reflects that of many workers at the forefront of advancing knowledge in a variety of fields. Time and again one comes across the complaint that there is too much compartmentalising of knowledge, of specialists erecting intellectual barrieres to safeguard the integrity of "their "field against non-experts trying to break into it. At the same time, it has become clear that many of the most interesting advances in knowledge are made in precisely those areas lying between the traditional disciplines where such barriers are being broken down. The view of the universe as a "seamless web" gains ever more credence.

I had already written this paper up to this point when Eric de GROLIER came to stay with us on the occasion of his visit to the CRG meeting on 21 February this year. In the course of our customary animated discussion, we both seemed to agree on the tentative conclusion that the era of the bibliographical classification based on the traditional disciplines was coming to an end, and that classifications by levels of phenomena would claim more attention in the future. I was happy to remind Eric that this view would be quite in harmony with the CRG discussions on Integrative Levels and General System Theory (7).

12. Classification of New Knowledge

But there exists another exciting opportunity that could arise from integrating special schemes with an over-

arching general scheme, and it relates to hitherto unexplored areas of knowledge, and in particular to the existence of growth points at the boundaries between disciplines. In a special scheme based on a faceted structure, it would be a relatively simple matter to enter into a computer file all the terms in every facet, and then to search a database to find out which combinations of terms have not yet been recorded in the literature. These will be those areas in which no research has apparently been done yet, or at least not published yet, and we could well find ourselves in what W.I.B.BEVERIDGE calls the "Eureka situation": "by intuition from *random juxtaposition of ideas*, I mean the sudden linking of apparently unconnected ideas or pieces of information to form a new, meaningful relationship" (8). In other words, a faceted classification offers the chance to make an efficient, structured search for what has not yet happened. I proved this in my classification for Container Manufacture many years ago: two years after its completion, my scheme was able to classify, *without any addition to its schedule*, a German patent for a brand new industrial process for making boxes for pharmaceuticals.

13. Further Advantages

My recent experience with Class J and Cricket, in the matter of borrowing from other Classes, suggests that this idea can be usefully extended even further. These two schemes show interrelationships not confined to one specialised area, but extending more or less over the whole of knowledge. I can see no technical difficulty in entering the whole of the BC2 schedules, when complete, into a computer file. One might then match the terms from, say, the Materials facet in one Class, with the terms from the Energy facet in another Class, to find out what sort of combinations result. Many of them, as ideas for research, would no doubt be impossible or ridiculous, but one can imagine the reward for finding a genuinely valuable area with the potential for research to bring real benefit to suffering humanity. I commend this suggestion to would-be Doctors of Information Science; it would be a splendid demonstration of the creative value of an information service.

This integrated linking of a general scheme with a set of specialist schemes presents several advantages. There is the fact that each area of knowledge is surveyed and enumerated by experts; this gives the right to assume that every concept known in a field will be present and available for borrowing. But at the same time each field is structured by the same rules as the others, giving an overall homogeneity which will make sense to users. Organisers of Library and Information Services will demonstrate that they are aware of the nature of growth points at the interfaces between fields, and this will no doubt encourage confidence among the users that the organisers of their services are aware of what is happening in the outside world. It avoids the ever-present danger of over-compartmentalisation, while the common structural basis provides a useful element of predict-ability: useful for indexers in aiding consistency, useful for users in confirming what they anticipate and hope for.

With the use of the technique of facet analysis, production of a new or revised scheme for any field does not present the same difficulties of enumeration as a non-faceted scheme such as the Library of Congress Classification, which attempts to list compound subjects as well as their separate elements, or facets. Yet despite the fact that vast sums of money are being poured into grand new buildings for national, university and public libraries, there seems little of the same enthusiasm for spending a minute fraction of such wealth on bringing up to date the intellectual foundations on which the value of the collections rests.

The CRG is not, of course, the only group interested in questions arising from the organisation of knowledge in relation to documentary classification; Eric refers to several in the paper cited above. But the main problem facing us is the reluctance of most librarians to face the task of re-classifying a large library, in spite of the fact that, in the years following the end of the Second World War, many university libraries in the USA were actually re-classified from the DDC to the LCC - exchanging one 19th century scheme for another. If those with the power, which means the necessary finance, would grasp this nettle and boldly undertake the enterprise, they would earn the gratitude and respect of our successors in the 21st century, as we respect and are grateful to Dewey, Cutter, Brown, and Bliss, and the other pioneers of the 19th and 20th centuries.

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