

The Bliss Classification Bulletin

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E IS FOR EDITORIAL ...

A is for Abstractions and Algebras (and Almost ready)
B is for Blinded by science
C is for Chemistry and Carbon and Catalysts
D is for Down to Earth (and up in the sky)
E is for Enzymes and Energy metabolism
F is for Figs, Ferns, Fungi and Fuschias
G is for Goats, Gnats, Gorillas and Gastropods
H is for Human Hormones, Health and Hospitals
I is for Intelligence, Inkblots and Inborn characteristics
J is for Juveniles aged 1-100, education of (and Just revised)
K is for Kinship and Kingship, and Kissing and Keening
L is for Long barrows, Longships, Long ago and Localities
M is for MY land (or the one you prefer)
N is for New world and old
O is for BiOgraphy and Opening diaries
P is for Priests and Prophets and Precepts
Q is for Queueing for welfare (and revision!)
R is for Representation of the people, Regimes and Repression
S is for Silence in court!
T is for Takeovers, Taxes and Trading
U is for Useful arts (and Unused headings?)
V is for Very many Various technologies
W is for Wagner and Watteau and Wren
X marks the spot for language and literature
Y is for Yeats, Yevtushenko ... You-name-them
Z is for your favoured language to fill
with Zola, Zweig, Zamyatin or Zangwill

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A is for Alas and yet more Apologies. We had hoped to have Class A in your hands by now, but this has taken longer than expected. The year has seen not only the completion of this complex class, but also the revision of Class J, Education (Douglas Foskett's article about this project appears later in these pages), the virtual completion of the vocabulary of Classes R and S, Politics and Law, which now await refinements to their notation and input to the computer system, and work in other areas, including the production of a (regrettably, much needed) replacement index to Class T. Nevertheless, a volume in hand is worth two in committee, and we are painfully aware that we have a long way to go yet if we are to fulfil our obligations to our users. Reiterated excuses, even though perfectly valid, are only an irritant.

To complete the task we have set ourselves, we must have adequate funds. Many members of the Committee give a lot of their own time and energy for nothing (or bare expenses), but our professional research assistants, computer consultants, keyboarders and the rest cannot be expected to subsidise the classification, and must be paid reasonable fees and honoraria. The sums received from our earlier fundraising campaign are now running low, and the Committee is therefore launching a new campaign this autumn. Please support us -- and help yourselves and your fellow users -- by sending information about possible sources of funding to the Hon. Secretary. (Money in lieu of information will not be refused ...) The Appeal Document is enclosed with most copies of this issue; if you have not received one and feel you can help, please write to him at the Cambridge address at the foot of this page.

Keen-eyed readers may notice that there are no Additions and amendments to BC2 in this issue. This is deliberate; there was a lot to cope with last year, and this time you can have a rest. However, this does not mean that the work of revision has been halted. We suspect that many librarians make their own extensions to the schedules and the vocabularies: please share them. Ad hoc? Amateurish? "Unimportant"? -- rubbish, it's vital! Don't be bashful: you are the people who are in daily contact with the literature and are actually applying the scheme. Users of Class Q, in particular, are being invited to send their suggestions to Madeleine Carrington, who is coordinating the revision of this well-used class.

Night thought: U is a Useful literal mnemonic -- but does anyone, other than a librarian, talk about Useful Arts these days?

A.G.C.

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BLISS CLASSIFICATION ASSOCIATION

MINUTES of the ANNUAL GENERAL MEETING of the Bliss Classification Association held on Friday 16 December 1988, at the King's Fund Centre, London.

Present: Jack Mills (Chair, and Editor of BC2)
Ken Best (Personal member)
Peter Boaden (University of London Library)
Robin Bonner (Personal member)
Madeleine Carrington (Personal member)
Keith Cheyney (Haberdashers' Aske's Boys School)
Tony Curwen (College of Librarianship Wales)
Ed Dua (DHSS Library)
Frank Emmott (Barnardos)
Douglas Foskett
Joy Foskett
Angela Haselton (Tavistock Joint Library)
Roger Hughes (Commonwealth Institute)
Marion MacLeod (Fitzwilliam College, Cambridge)
Kim Meacher (National Institute for Social Work)
Colin Neilson (City University Department of Information Science)
Helen Oliver (Tavistock Joint Library)
Helen Parker (Cheshire County Council Research Library)
Chris Preddle (Personal member)
Caroline Ray (OPCS Library)
Angela Rennie (Barnardos)
Hilda Stoddard (Chester College)
Alan Thomas (Ealing College, School of Library and Information Studies)
Geraldine Turpie (Bowker-Saur Ltd.)

Apologies: Suzanne Burge (OPCS Library)
Susan Bury (Haddon Library, Cambridge)
Eric Coates
Jean Garriock
Elizabeth Russell (King's College, Cambridge)

1 The minutes of the annual general meeting held on 14 December 1987 were approved.

2 Matters arising

2.1 The Treasurer reported on the short course on Class T, 'Bliss means business', held at the Polytechnic of North London on 15 December 1987. It had attracted about twelve people, who had found it helpful, though it had not made a profit.

2.2 Tony Curwen, the editor of the bulletin, brought up to date the information on new members of the Association published in the 1988 bulletin. The Chairman congratulated him on the style of the bulletin.

2.3 The Chairman paid tribute to John Campbell who died in November 1987. John had been a longstanding and loyal friend and forthright supporter of BC2. He was Secretary of the Association for nine years, and had made a very generous covenant for the completion of the natural science classes.

3 Progress of BC2: Editors's report

3.1 The Editor introduced his written report which had been circulated to the meeting. He mentioned the few areas not yet scheduled in Classes U/V Technology, and the speed with which the new edition of Class J Education had been completed.

3.2 After a question from the floor the meeting discussed the bad index in Class T Economics and Management. Alphabetical blocks of terms and some very common terms were missing because of a fault in the index generation programs. The publication of amendments in bulletin would be laborious; a complete corrected index could be produced instead from the machine-readable schedules. It was agreed that the committee would consider the production and distribution of a complete corrected index. Action: JM, CP, CN.

4 Production of BC2

4.1 Colin Neilson introduced his written report which had been circulated to the meeting. The delay in production of Class A was due to delays in input. The Association could now offer a schedule production service.

4.2 The Chairman added that Colin had had to cope with a great deal of work, but that there would be less delay in future, as all schedule compilers now input their own data and he too would be doing so soon. Class A would be much better than T in both index and layout.

5 Membership, finance and fundraising: Treasurer's report

5.1 The Association had ninety-six members. The loss of members among library schools and university libraries, and the recruitment of smaller libraries, was changing the Association into one of BC2 users.

5.2 The Treasurer introduced the accounts for 1987-88, and sales figures for 1983-88, which had been circulated to the meeting.

5.3 The committee had decided to make a new appeal for funds, aimed initially at corporate donors and sponsors. The target would be the realistic cost of completing BC2, about £125,000. An appeal letter and supporting documents were being drafted.

6 Ken Best was elected auditor for 1989.

7 Publicity

7.1 The Publicity Officer welcomed Geraldine Turpie, the Managing Editor responsible for BC2 at Bowker-Saur, to the meeting.

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7.2 There had been few reviews of BC2 during 1988, but some mentions in professional journals. Journals and reviewers that might review Class A would be suggested to Geraldine by the committee.

7.3 The Secretary reported the impertinent choice of the acronym BLISS for the British Library Information Sciences Service. He and Eric Coates had written letters of protest to the Library Association Record (Oct 1988). The meeting expressed clamorous indignation at the British Library and agreed to write deploring what it had done. Action: CP.

8 Chris Preddle was elected to the committee for 1989-90-91.

9 Third edition

9.1 The Editor reported that the second edition of Class J would not be reprinted, as the third edition was almost complete. A revised edition of Class Q Social welfare, a widely used class, would be prepared during 1989, and the existing volume would not be reprinted. Class P Religion needed revision, but no plans for this could be made yet.

BLISS CLASSIFICATION ASSOCIATION CONSOLIDATED RECEIPTS AND PAYMENTS FOR THE YEAR ENDING 31st JULY 1988

<u>1987</u>	<u>RECEIPTS</u>	<u>1988</u>	<u>1987</u>	<u>PAYMENTS</u>	<u>1988</u>
	Balances forward 1st August 1987		228.50	Committee & AGM expenses	322.40
2113.63	General accounts (adjusted)	2634.04	126.92	Stationery & Postage	223.49
13050.05	Appeal account	6740.52			
	Subscriptions			2nd edition expenses	
25.00	Personal	36.00	4124.94	Research assistant	5063.55
25.00	School	30.00	101.20	Work on Class T	00.00
617.28	Other institutions	844.88	1394.11	{ Work on Class A	713.15
				{ Work on other unpublished classes	100.77
337.85	Butterworth's royalties on 2nd edition				5877.47
86.80	Distribution from M & G (Charibond)	86.78	4981.23	Computer & other equipment	2993.75
3000.00	BCA Appeal contributions	1500.00	00.00	Class T Short Course, Dec. 1987	153.16
	Sale of supplementary schedules	6000.00	117.17	Other Payments	257.62
	Interest payments			Balance in hand at 31st July 1988	
159.83	Deposit account	176.92	58.11	General current account	70.80
986.19	Appeal account	489.79	2583.93	General deposit account	2648.08
55.00	Other receipts	28.00	6740.52	Appeal account	6858.46
					9577.34
<u>20456.63</u>		<u>19405.23</u>			<u>19405.23</u>

6

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Marion MacLeod

Hon Treasurer
6 Gilbert Close
Cambridge
CB4 3HR

Current assets at 31.7.88

<u>1987</u>		<u>1988</u>
800.13	Charibond (at cost)	800.13
2642.04	Cash in general accounts	2718.88
6740.52	Cash in Appeal account	6858.46
<u>10182.69</u>		<u>10377.47</u>

Auditor's Report

I have examined the books, bank statements and other relevant papers of the Bliss Classification Association and find the above statement of accounts to be correct.

K. Best
Hon. Auditor
25.11.88

2 Greendale
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Somerset
TA19 OEB

CLASSIFICATIONS
AND INFORMATION
LANGUAGES

Thoughts on Revising a Bibliographical
Classification Scheme

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Discusses some principal problems involved in developing classification systems for use in modern libraries and information centres. Examples are based on practical experience in preparing a revised version of the Class J Education of the Bliss Bibliographic Classification, 2nd ed. Several specific advantages of BC2 for users are shown. Special attention is paid to the relationship between general classifications and more detailed schemes for special subjects, as well as methods for using the facet approach.

Although the Bibliographic Classification of H. E. Bliss is not widely used throughout the world, nevertheless it represents a high peak among schemes of classification designed for use in general libraries. First produced as the life's work of one man, it has a sound intellectual base in Bliss's two major theoretical works, *The Organisation of knowledge and the system of the sciences* and *The Organisation of knowledge in libraries and the subject approach to books*. When first published in 1935, the scheme was welcomed in Britain, and has been applied in many university and college libraries as most suitable for a scholarly community concerned with detailed subject analysis. The bibliographical record of the publication of BC is somewhat complicated, but need not concern us here, as a revision of the whole scheme is well advanced and is being published in England by Butterworths as BC2. The Prefaces by Bliss himself, with a short biography by D. J. Campbell, can be found in the volume *Introduction and auxiliary schedules*, by J. Mills and V. Broughton [1].

Several of the librarians who had applied or studied Bliss's works joined the British Classification Research Group (CRG), founded in 1952 on a suggestion from J. D. Bernal after the Royal Society Scientific Information Conference of 1948, and now well past its 250th meeting. The CRG members came mostly from industrial special and academic libraries and information centres, and many of them were actively engaged in constructing schemes for arranging and indexing their own collections, having concluded that none of the published schemes provided a satisfactory system, either in arrangement or in depth of detail.

The early discussions centred, therefore, more on method, leaving individual members to work out specific applications. Agreement was quickly reached on the necessity for both analysis and synthesis in schedule construction. This had been used in several major schemes, even from the first edition of Melvil Dewey's *Decimal Classification* in 1876. The originators of the UDC, Oilet and La Fontaine, had considerably extended the synthetic element, improved over the years by the FID, with the auxiliary signs and symbols. Bliss provided 'Systematic Auxiliary Schedules' in BC1. All of these

schemes, however, were *enumerative*, in that the basic method of schedule construction consisted of analysis from genus to species, exemplified by the classificatory sciences.

A revolutionary breakthrough was made by S. R. Ranganathan with his theory of facet analysis. While considerable doubts were felt by CRG members as to the validity of his theory of Five Fundamental Categories, we concluded that the technique of facet analysis itself offered the best method available, and in 1955 Unesco published our manifesto to that effect, written by B. C. Vickery, the first Secretary and a prime mover in the discussions [2]. Our progress has been charted by the publication of a series of *CRG Bulletins* in the *Journal of Documentation*, and each *Bulletin* contains a bibliography of books and articles by CRG members, now amounting to a formidable total, well-known all over the world. From the beginning, the discussions have influenced the structure of the *British National Bibliography*, whose first Editor, A. J. Wells, was the founder member originally approached by Bernal.

Through the sponsorship of Aslib, the CRG was able to convene a Conference at Dorking, England, the first International Study Conference on Classification for Information Retrieval [3]. Three more such Conferences have been sponsored by FID: in Elsinore, Denmark in 1964; in Bombay, India in 1975; and in Augsburg, Federal Republic of Germany in 1982.

As expected, several factors affecting the construction of specialised schemes emerged from these early discussions. Prominent among them were: questions of vocabulary, the collection of terms likely to be sought in information retrieval, and the necessity for including in special schemes many terms that did not strictly belong to the particular subject speciality. In a scheme for Container Manufacture, for example, there was need for a facet for terms dealing with the product to be packaged — 'from aspirins to battleships'; in Education, there was need for a facet for the subjects of the curriculum — any subject may be taught. Thus, alongside the research into methods of construction, there developed an acute awareness of the lack of a good general scheme, based on these methods and covering the whole of knowledge, a sort of 'ur-classification', which could

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be used as a reservoir of terms from which specialised schemes could draw lists in marginal subjects as required, thus avoiding the obvious danger of a facet containing marginal terms far outweighing the core facets in size, producing a cumbersome structure with corresponding problems of notation.

Careful consideration was given to the UDC, but this was rejected by most as being shackled to its DC foundation, basically an enumerative scheme; but it has, of course, proved very useful in providing lists of specialist terms and also giving some indications of the places assigned in that scheme to newly-developing subjects by experts in those subjects. The CRG members interested in BC1 then advocated a revision of that scheme on two main grounds: (1) its basic outline of subjects was the most scientifically sound; and (2) it provided better scope for implementing a faceted approach than any other of the major schemes.

Concurrently with these discussions, Unesco had been developing the work that led to the Broad System of Ordering (BSO) in association with the UNISIST programme [4], and with FID; this work was led by E. J. Coates, another founder member of the CRG [5]. The revisions of BC1 have proceeded in close connection with BSO, and Coates, together with J. Mills, another founder member and a teacher of classification, has been one of the most important influences on, and contributors to, BC2; Mills has been Editor from the beginning.

The decision was made to publish BC2 in separate fascicles, like UDC and the Library of Congress Classification, and the first to appear was Class J Education [6]. This Class is widely used in Britain in Colleges of Education, and a modern fully-faceted scheme was already available in the London Education Classification, of which the second edition, LEC2, appeared in 1974. This scheme was experimental in two ways: (1) it was based on a single, or unit-term entry; and (2) it used a three-letter pronounceable notation based on the roman alphabet, which had in LEC2 to be modified to include four-letter symbols precisely in order to accommodate more 'marginal' terms. In the University of London Institute of Education Library, it was used together with a multi-entry classified catalogue, and the rationale on which the structure was founded was described in a paper for the Council of Europe [7]. An example of the multi-entry catalogue can be found in a research report submitted to the British Office for Scientific and Technical Information in 1973 [8]. There was already, therefore, a considerable body of classification research directly relevant to a new edition of Class J.

The system of pronounceable notation did not offer any advantages, because it was completely different from that used in BC1 and would have resulted in much extra work in libraries wishing to use the revised edition. Fortunately, a 'Bliss-type' notation using facet principles was available in the British Catalogue of Music. Devised by E. J. Coates, this introduced an ingenious use of roman letters on a 'retroactive' principle. Each facet begins at a particular letter or combination of letters; the subdivisions of the facet continue by adding letters which occur later in the alphabet. This enables this facet to be subdivided by earlier facets simply by adding their notation letters. Thus:

D	Choral music (first facet here)
DK	Anthems (subdivision of first facet)
EZ	Unaccompanied choral works (another subdivision of D)
G	Male voices (second facet here)
GEZ	Unaccompanied male voices (facet G divided by D)
GEZDK	Anthems for unaccompanied male voices (G divided by two subdivisions of D).

While the practical use of this form of notation requires careful study in compound subjects, it provides great advantages in short symbols and reduces the bulk of the schedules. As with all faceted classifications, it also gives freedom for the greatest possible flexibility in compounding symbols in order to give a unique identification for highly specific topics.

Because the LEC2 was already published, it was no surprise that BC2 Class J Education was the first to appear of the new edition, along with a second volume containing a new Introduction and Auxiliary Schedules. This met with a favourable reception from users and reviewers, and since 1977 a succession of new Classes has appeared from Butterworths, in separate volumes. Many improvements have been made, both in the schedules and in the presentation, typography and layout. Several of these Classes are marginal subjects for Education: Class I Psychology; Class K Society; Class Q Social Welfare; Class T Economics and Management. An outline of the whole scheme is given in the volume *Introduction and Auxiliary Schedules*. Besides, additions and amendments to Class J itself have been published from time to time in the *Bulletin* of the Bliss Classification Association. With the original edition of BC2 Class J becoming out of print, a new edition was called for, which would also incorporate such revisions, and this is now expected in 1989.

The first step was to compare the alphabetical index of BC2J with several existing thesauri and indexes: LEC2, EUDISED Thesaurus, Unesco thesauri, and the latest annual volume of the *British Education Index*. Several points emerged from this simple but lengthy operation, and were brought to attention of the 268th CRG Meeting on 26 April 1988.

1. Because of the use of a 'chain procedure' in making the alphabetical index of BC2J, some terms not found there were, in fact, later found to be included in the schedules. Thus, while J. Mills forcefully advises users not to classify by the index, nevertheless the majority will find that they have to do so in practice, at least until they become very familiar with the schedules. Also, critics of BC2J have pointed to omissions on this very basis, using only the index. In BC3J, all scheduled terms will be included in the index.

2. The index to BC2J uses 'See' references from one term not used to the term used, that is between synonyms like the USE reference in a thesaurus, without giving a notation symbol. 'See' references are unnecessary if the notation symbol is given in both places, as is

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done in the alphabetical thesaurus section of LEC2, and there is also a space saving.

3. Many of the terms found in other thesauri are not single or elementary concepts, but compounds. In a faceted scheme these would be enumerated only very rarely. The ERIC Thesaurus is generous to the point of prolixity in this respect, even to the extent of listing many compounds beginning with the word 'School ...', or 'Educational ...'; surely this is hardly ever necessary in a thesaurus/classification for the subject Education itself. Nevertheless, it does suggest that, to secure the widest possible acceptance, a faceted scheme must make absolutely clear to all users that such terms will not be enumerated, but must be identified by combining terms from the facets as each document requires, or as specifically as the classifier wishes. In BC3J, we propose to give examples in the introduction, in the hope that users and reviewers will actually read it!

4. The most important single factor, at this stage, was the operation of bringing the schedules of BC3J into closer connection with the other new Classes containing the marginal terms, particularly Classes I, Q, K, T. This had created an opportunity to take a fresh look at the whole question of marginal subjects, as well as adjusting the wording of the instructions to conform with the newly standardised form, at places where borrowing from those other Classes would be required to classify to a higher degree of specificity.

5. The problem of one peculiar marginal facet, that of curriculum subjects, was quite easily solved. As we had argued from LEC1 onwards, there are only a few curriculum terms that are actually core subjects in Education, such as the concept of 'basic subjects' and terms that define types of curriculum structure. Yet, because every subject may be taught, a method had to be found to ensure that any curriculum subject document could be classified and indexed. We propose to include in the Education facet a selection of the most-sought terms and to derive them from the Third Outline printed in the Introduction volume. We shall print in BC3J the entire Third Outline, plus more detailed outlines of Classes I, K, Q and T. This will provide a method for classifying in as much detail as required, with explanations as to how to find more specific topics in the other Class volumes, without bulking out the schedules of Class J itself. It is, of course, a simple example of synthetic classification, of the type begun in elementary fashion by Melvil Dewey even from the first edition of DG in 1876, but without the need for a combining device such as the colon in UDC.

The first selection of new terms was made by listing on cards those not found in BC2J but found in one or more of the other publications. Those found in more than one of these sources were obvious candidates for inclusion, but it was something of a surprise to find how many apparently well-known terms appeared in only one source. The several sets of cards resulting from this exercise were then combined into one file and each term allocated to a provisional place in the new BC3J schedule. This step revealed another factor not quite so unexpected: the different ways in which the same concept could be classified in the different schemes, as shown by their collocations and RT thesaurus references. This applied particularly to marginal topics like sociology and management, and illustrates one of

the main areas of controversy over the subject of Education, particularly in the light of the relationship between a special classification scheme and the general classification of which it forms a part. Can, or should, a scheme devised for one given subject field be an integral part of a general scheme covering the whole of knowledge? At the Bombay Conference, some members certainly thought that such a 'do-all' scheme is impossible.

The editors and revisers of BC2 do not share this view. In Ranganathan's Colon Classification, the first fully-faceted scheme, he makes frequent use of schedules from different classes: Class F Technology and Class H Geology borrow from Class E Chemistry; Class G Biology borrows from Class I Botany and Class L Medicine; Class J Agriculture borrows from Class L Medicine; and there are many other instances. The first revision of Bliss, that is BC2J, borrowed from Class K and Classes P to U, and this method has been followed as far as possible in BC3J. In doing this, of course, we have been able to use the new editions of other Classes not published in time to be available for BC2J. In order to give a satisfactory demonstration of the method, we have given several more actual examples; this is at the expense of economy in the printed schedules, but should make the task of classifiers and indexers more straightforward.

In the first schedule, which consists of J 4/6 Common subdivisions, BC2J has only a single entry for Comparative Education at J6P; but there are several well-recognised methods of study in the field of Comparative Education, and all of them can be derived from Auxiliary Schedule 1. BC3J gives these:

J6P	Comparative Education
J6P NF	Case studies
J6P NH	Problem studies
J6P NL	Area studies
J6P Q	Cross-cultural studies
J6P T	Historical studies

By using the retroactive principle, Case studies using the Historical method will be classified as J6P TNF, but knowing the method means that this need not actually be enumerated in this schedule. This is a simple demonstration of the value of synthesising, in that the new subdivisions already existed in a published volume, the Introduction.

A real problem arises when a schedule that has been enumerated in one volume, as in BC2J at JCP Personnel, does not coincide with the more detailed schedule subsequently published in the Class where that area is a core study, in this case in Class T Management. The principles and practice of Personnel Management are not at all specific to Education; here, indeed, they form a classic example of a 'marginal field' that has expanded rapidly, far beyond its original range. In order to make the best use of this type of rapid development of such a marginal field, the specific subject, in this case Education, must bring its own enumeration into line with the new enumeration in Class T, in order to make the newly available expertise. If this is not done, then Class J will either have to face the prospect of continually having to publish amendments and additions to its own inadequate schedule, or remain content with the published schedule, which becomes increasingly out of date and unable to cope with the new

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literature. Thus, the original schedule, here in Class J, will lose the advantage of an enumeration, here in Class T, compiled by specialists in Management and kept up to date by them. The problem is to weigh the advantages to be gained from the maximum use of synthesis against the necessary work involved in re-classifying and indexing the stock already classified by the old scheme.

This always provokes a hostile reaction. Yet experience shows that it can be done, if necessary in stages, without too much expense or upheaval. Many American universities have re-classified their libraries, from DC to Library of Congress — exchanging one nineteenth century scheme for another. Experience also shows that authorities appear to be quite happy to spend very large sums of money to provide new and elaborate buildings, and to invest very large sums in machines for automation which have to be replaced, at even larger sums, in a relatively few years. By comparison, the labour and cost of re-classifying a library is small; and it should not be forgotten that here we are dealing with the progress of information and knowledge, and that the provision of these is the prime motive for having a library at all. The objective of making a revision of the most up-to-date of all the general bibliographical classifications is to give library users an opportunity to see a spectrum of the universe of information displayed in an order that makes sense, which enables them to discover how the experts in each field think it best to arrange their information.

In the Class Personnel Management, for example, the schedule in BC2J was very thin, and was split between two places: one as a sub-facet of Administration, the other as a sub-facet of the Teaching Profession; the subheadings and even the notation were partly different. The revision, BC3J, is able to include a much more detailed expansion taken from the new Class T Management, with the possibility of adding other detail from that Class wherever necessary for the most detailed subject specification. Thus for Personnel Management in general, the following extracts from Class TU are included at JCP:

JCP AQ	Management of personnel
JCP	*(note) Add to JCP letters A/U following TU. A selection of prominent concepts is given here:
JCP BMW	Flexibility in personnel resources, redeployment
JCP E	Personnel relations
JCP G	Disputes
JCP H	Industrial action
JCP ORY	Conditions of service
JCP P	Salary, pay
JCP RB	Working conditions other than pay
JCP RJ	In-service training
JCP SB	Recruitment and selection
JCP SJ	Selection
JCP SU	Appointment
JCP SVT	Probation
JCP TB	Leaving
JCP TC	Dismissal
JCP TP	Hours
JCP TU	Leave
JCP U	Health and safety of personnel

The same schedule, with the same notation, can be added to Class JH to apply specifically to Teaching Staff.

As with the previous editions, the notation used in BC2 is non-expressive, and the relative subordination of Classes and Divisions is shown by the indentation of the terms in the schedules.

The same procedure has been followed for other main areas of Management, the Administration of Educational Systems and the Management of Institutions; for family relationships; for health, medical and welfare services; for psychology; for vocational and professional education; and for special categories of persons such as the mentally, physically and socially handicapped.

Another main feature of BC must be mentioned: the provision of alternative places in the schedules for several subjects. These alternative places must not be confused with alternative ways of classifying a single document. They offer to the individual user the opportunity to make a choice between placing a whole subject in one part of the scheme or in a different part, according to the needs of the individual's own library. Yet once that choice is made, all documents must be classified at the preferred place, and the non-preferred place becomes vacant. BC2 has adopted a standard procedure, explained in the Introduction volume: the details are set out at a recommended place, with a note directing the user to any other, thus:

JCD L	Functional spaces, areas, rooms
	*The preferred arrangement is to subordinate buildings and equipment serving special functions to their function.
	*An alternative (not recommended) is to collect here all material on buildings and equipment, using JCE/K for those serving special functions.

These alternatives are found not only within one Class; whole Classes are given alternative places in the main array of Classes. The preferred place for Religion is at Class P, collocated with Class L History and Class PY Morals and Ethics, and the alternative is at Class Z, following Class YU Literature (general and comparative). Technologies based on Physics may be collocated with Physics at Class BR, or with Technology at Class UG. There are many other instances throughout the scheme.

There are those who argue that, in this age of computers and information technology, libraries will soon become redundant and there will be no further need to revise bibliographical schemes of classification. This view flies in the face of all the evidence: more books and journals are being published than ever before, and 'book hunger' is one of the outstanding features of Third World and developing countries, as well as in countries with an advanced technology. The reason is not far to seek.

Apart from the continuing need of libraries to cope with this vast number of publications in all fields, and to arrange them in an order that makes sense to users, knowledge itself progresses ceaselessly through the interactions between various events and phenomena. It cannot be divided up into separate and independent classes as in the enumerative schemes, nor is the genus-species relation the only form of interaction. As John

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Ziman, in his influential book *Public knowledge*, points out, the intellectual structure implicit in library catalogues, indexes and bookshelves, gives meaning to the research of the past and motive for research in the future [9]. This has to be achieved by using a scheme of classification covering the whole of knowledge, with an integral facility by means of which schedules designed by experts in each field are made available throughout the scheme, as with Management in Education. Research into these techniques can only be carried out on the basis of practical testing in real life, in libraries using bibliographical classifications.

In his interestingly entitled article, 'Historical note: information retrieval and the future of an illusion' [10], Don R. Swanson cites the famous Weinberg Report on *Science, Government and Information*, which argues that Science can flourish only if every branch of Science interacts with other branches: 'The ideas and data that are the substance of science and technology are embodied in the literature; only if the literature remains a unity can science itself be unified and viable'. Swanson defines two sets of postulates: 'Postulates of impotence', statements about what it is impossible to achieve, and 'Postulates of fertility', statements about what it is possible to achieve in using the literature as a unity to advance the progress of science.

In discussing Postulates of Impotence, Swanson refers to the difficulty of matching the terms of users' requests with the terms used by indexers to index the documents which would satisfy those requests. The enquirer has a gap in his mental picture of a subject, but does not know its size or shape; as in a jigsaw puzzle, this gap may be filled by pieces, of information, which may themselves vary in size and shape. Each piece exists in a particular context, and to complete the missing part of the picture, these pieces have to be taken from their several contexts and intersected with one another. Now, this is precisely what happens when using a faceted classification, because it is based on analysis of data given by the description of a subject, as it exists in totality, into a set of categories, each containing one series of data, which can be combined as required to produce the right intersections. It is a lattice system, and not simply a Porphyrean hierarchy. It can easily cope with new and unforeseen intersections. An enquirer can consult the separate categories and put his mind into the same matrix as the indexer, because neither begin by formulating the total concept as a full subject specification in one preconceived statement. They both begin by identifying the separate elements, each in an established and well-recognised context, just as in the jigsaw puzzle, where one looks for separate pieces, each of which fits with a piece already in place.

By building up a computerised file on facet prin-

ciples, it will be a simple matter to discover which intersections have not yet been made, or whether a particular idea for research into the reaction between separate concepts has yet been tried.

This is, in fact, relatively obvious within one Class, where all the items in each facet have an established relationship with one another because they belong to the same field, the same context in the real world. It has not so far been investigated with a complete general scheme, because it would clearly be an impossible labour using an enumerative scheme. A faceted scheme like Colon or BC actually depends, however, on the synthetic principle, depends on using intersections between Classes and not simply within Classes. It is, in fact, the very tool required for exploring Swanson's Postulates of Fertility, in that it not only enables, but also requires, the user to look beyond one particular context in specifying the subjects both of documents and of enquiries. Therefore, research into the construction of general classification schemes will always be an integral part of the progress of knowledge, not as an intellectual exercise, but because that progress itself insists on careful and detailed articulation of the elements that contribute to it.

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First steps in classification and indexing

Subject analysis : principles and procedures / D.W. Langridge. - London [etc.] :
Bowker-Saur, cop. 1989. - 146 p. - ISBN 0-408-03031 : £18.00

I have headed this review "First steps" advisedly, for Derek Langridge's new book really does deal with those first stages which are so often omitted or glossed over in our professional textbooks. Take, for example, this passage from Derek Austin's *PRECIS : a manual of concept analysis and subject indexing*, 2nd ed., 1984:

"We shall start our overview of the indexing operation by assuming that the indexer, after examining a document, has reached a point where its subject (and also, perhaps, its form) could be expressed in a summary phrase... The words in ... these phrases form what is called a *subject statement*." (p. 8-9)

or this unimpeachable extract from the introduction to *Dewey Decimal Classification*, Ed. 19, p. xxxix, with its hilarious final sentence (I thought the British were supposed to be the masters of understatement):

"7 Analysis of a work. Before he can fit a work into the system, or class it, the classifier must know exactly what its subject is, and from what point of view and in what form that subject is treated. To discover this is not always easy."

There are many excellent guides to the application of various indexing systems, and some of those systems themselves do indeed provide quite a useful framework which can help the indexer achieve some degree of consistency in subject analysis. Nevertheless, implicitly or explicitly, they all take as their starting point the assumption that we *know* what the subject of a document is, having been trained to identify and categorise it fully, accurately and logically.

Derek Langridge makes no such assumptions. *Subject analysis : principles and procedures* is, as far as I know, the first textbook for library and information science students to tackle these fundamental questions. He has looked at them before, to a limited extent, in *Classification and indexing in the humanities* (Butterworth, 1976), but now he has given us a rounded treatment independent of any disciplinary boundaries. "Subject analysis" is retained as the preferred term for reasons of familiarity, although, as he says, "content analysis" is a better description; many of the characteristics which may be identified in a document are not "subjects" in the usual sense of the word.

Langridge distinguishes *forms of knowledge*, *topics* and *forms of writing*. The first of these looks at first sight to be a consideration of disciplines or main classes, but his list of twelve forms of knowledge only partly matches the disciplines an academic might recognise, ignoring some, combining others and introducing a few concepts of his own (or borrowed from other thinkers): Prolegomena, the instruments of knowledge; Philosophy; Natural science; Technology; Human (behavioural or social) science; Social practice; History; Moral knowledge; Religion; Art; Criticism; and Personal experience. These are the ways in which we perceive subjects: the ways in which knowledge (in the widest sense) is obtained, investigated, created and applied. He maintains that the failure to recognise these distinct forms of knowledge lies at the root of much bad indexing, "classification by attraction" and other.

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Topics are the phenomena which are described or investigated. Many of them are characteristic of particular forms of knowledge, typically forming classes within them in traditional classification schemes, but by no means exclusively so: topics may be the focus of investigation for many forms of knowledge. *Forms of knowledge* and *topics*, taken together, define subjects, narrowly, but do not exhaust the indexable characteristics of a document. The third aspect, *Forms of writing*, deals with viewpoints, schools of thought, intellectual level, aims (description, analysis, prediction, evaluation, etc.), imaginative forms and textual characteristics (bibliographic form, language, text/picture, etc.). A chapter is devoted to each of these three aspects of documents, illustrated by abundant examples.

Langridge then goes on to discuss summarisation in theory and practice, followed by depth analysis. In the chapter "Subject analysis of systems" he points the difference between impartial subject analysis and the translation of that analysis into a specific index language. He uses DDC Ed. 19 and BC2 to exemplify old and modern classified systems, usually much to Bliss's advantage. Neither matches his ideas about fundamental forms of knowledge, their disciplines and main classes being based on virtually the same traditional assumptions, to a large extent, although displayed in different orders.

At the level of analysis within main classes, however, there is no doubt about the winner. He classifies four examples discussed in earlier chapters by both DDC and BC2. While it is pleasing to see that BC2 can specify many things fully and accurately, it can do the scheme no good in the eyes of readers to see classmarks such as IKW9FIAO9EPBMDEH and KQJOGFDANW23WKQJКСN8EC offered as models of good analysis and specification: they are presented as unbroken strings of characters, with no suggestion that such excessively detailed specifications are not recommended for the arrangement of library materials. (The fact that his use of BC2 in three of the examples is questionable and sometimes inaccurate should not, however, detract from their use as a demonstration of the method).

Many of Langridge's analyses would lead, if translated directly into an indexing system, to results which might seem strange at first. This is particularly true of what Ranganathan termed the "tool phase", that is, the use of the techniques of one subject in the investigation of another. For example, a psychological study of some aspect of art would be classed in BC2 (and many other schemes) under the subject investigated. Langridge maintains that psychology is a human behavioural science, with its own methods of working and its own specialised vocabulary, while art is the realm of imaginative creation (Art = works of art, music and literature, *not* the writings about them, which fall into the category of Criticism). These are distinct forms of knowledge, so he would prefer such a work, if written by and for people with a psychological education and training, to be classed with psychology. Nevertheless, he makes it clear that the first task is the sound analysis of the subject: only then can it be placed, however imperfectly, into the framework of the particular indexing system in use. The analysis reveals the subject: it does not change the system.

Despite occasional quirks and some views which may lead to heated arguments - or perhaps because of them - this is undoubtedly one of the most important books in our field to appear for many years. It should be read by all of us, not just by students. But why did it have to wait until I had just retired from teaching? - I needed it twenty years ago!

Tony Curwen

