

MICRO THOUGHT AND ITS SERVICE

S. R. RANGANATHAN

Examines the New methods and techniques for the communication of knowledge by Coblans and the Current documentation topics and their relevance to social science literature by Kyle. Sets out the causes for the crisis in documentation work. Suggests five additional problems for investigation viz. 1) Will the Bernal and the Donker Duyvis Plans fail to stimulate new-comers into research-field? 2) Adequate coverage in international documentation of nascent micro thought of Asian and African origin. 3) Reconciliation of the requirements of the design of classification for all its purposes and of machinery for search. 4) Comparative evaluation of machinery for search and visual scanning when individualising class numbers and chain procedure are used. 5) Design of machinery for copying selected entries economically from a catalogue designed for efficient visual scanning. Points out the problem of standardising terminology in social sciences falls largely within the sphere of the respective linguistic groups instead of in the international plane.

0 CONTRACTIONS USED

DC = the document entitled New Methods and techniques for the communication of knowledge, being a pre-print of about 10,000 words from the Unesco bulletin for libraries; 11, 7; 1957, July.

DK = the document entitled Current documentation topics and their relevance to social science literature, being a pre-print in about 8,000 words from the Review of Documentation; 24, 3; 1957, September.

1 INTRODUCTION

"Much ado about the obvious" appears to become a necessity now and again. When it does so, it appears to become equally necessary to use as sounding board the auspices of an influential body like Unesco, if a hearing is to be had. The two documents under consideration demonstrate this. DC is the production of Dr. Coblans, specially commissioned for the purpose by Unesco. DK is the production of Miss Barbara Kyle, in partial fulfilment of a long-term commission by Unesco to make a detailed study of Social Science Documentation. A more truly descriptive title for DC would be New methods and techniques for the production, storing, location, and service of recorded micro thought.

11 Storing

In regard to storing, arrangement of the documents on shelves or in cabinets forms the crucial problem. At the one extreme, there can be arrangement by accession numbers. For compact shelving, it will be even better if different accession-sequences are formed for different sizes of documents, as is done in the Leipzig Institute. But if the reader is to have the benefit of browsing

among the documents, the other extreme of a minutely classified arrangement becomes necessary.

12 Service

Service of a document to a reader may take one of two forms. The copy of the periodical containing the document may be lent to him for a specified period. Or, a copy of the document can be made and given to him for permanent possession. The latter method has come into vogue recently as a result of the invention of cheap methods of mechanical copying. The copy may be of the same size as the original, as it is in dye-line copies; or it may be reduced to micro size as in micro card or micro film roll or strip, in which case the reader must use a reading machine. Matters connected with these are now being elaborately pursued at all levels.

13 Location

Location of a document has to be helped by a documentation list, be it a catalogue or an abstracting or indexing periodical with its cumulative indexes. To cut down cost and time-lag, each country or region is obliged to have, as an auxiliary tool, a centre in which the entries are maintained in cards or other equivalent forms. This has also to be done by individual service-libraries catering to specialists, to some extent however restricted. This again brings the problem of arrangement. At one extreme, it can be an impermanent random one. This happens when the entries on a specific topic are gathered together with machinery. In this case, a reader cannot get the benefit of scanning in one or two sweeps of his eyes, a full, connected, filiatory, helpful panorama of all the entries on his field of interest, all its subdivisions and all the broader divisions of which it is itself a subdivision. In service-libraries, in published documentation lists, and in general, whenever the reader can have access to the list, this will be a serious handicap to many who are unable to define their field precisely. Often, it is only when a reader scans the full panorama of the entries that he finds all that he was vaguely conscious of having wanted. This is an oft-recurring situation as all refer-

ence librarians know from experience, no arrangement other than a minutely classified one, backed by an alphabetical index, can be of use. This has been described in my Classification and communication (1951) as the Apupa arrangement.

14 Crisis and Its Cause

A crisis has been created in the production of the documentation list and in the storage and service of micro documents, by the fabulous increase in their number.

1. Owning all the periodicals in which micro documents are published and which are of interest to the reading population of a library has become financially impossible. It is becoming impossible even for a national documentation centre.
2. There is a continuous increase in the number of micro documents appearing outside the conventional periodicals, say in house reports, proceedings of conferences, reviewing organs, releases often marked 'restricted' and produced only by near-printing processes, by government departments, the United Nations, and its Specialised Agencies.
3. The cumulation of the entries in an abstracting or indexing periodical is becoming uneconomical.
4. There is an increase in the number of languages in which important micro documents are being produced since the recent renaissance of many of the communities in Asia; Africa, and Eastern Europe.

15 Effect of the Crisis

The crisis so formed militates against the research work of the world being organised 'in-series', without the unintended duplication of any effort and the consequent wastage in the research-potential of the world. And the ever-increasing population pressure can no longer be met with natural or near-natural commodities or services, either in food, or clothing, or shelter, or transport, or even the management of the affairs of life in an organised community. It can be met only by drawing into the

research-teams many who are much short of the genius who alone had been interesting himself in research more to release his own inner tension than to meet social ends. This factor by itself produces a steep spiral in the output of micro documents. Further research has to be consciously and deliberately organised to run 'in-series'. To minimise the effect of the crisis, it has become necessary to improve the methods of documentation work and the efficiency of documentation service.

16 Selective Black-Out

DC and DK go into most of these problems and give a fairly objective account of the current attempts in the West in thought or deed to meet the crisis. They also single out a few problems that need further study, under the auspices of Unesco and other organisations. But there is a black-out of the thought being produced on some of these problems on the East of the Red Sea. Whether it is due to ignorance, or oversight, such a black-out is quite improper in documents sponsored by an international governmental body like Unesco.

2 STORAGE, PRODUCTION, AND SERVICE

21 Donker Duyvis Plan

The Donker Duyvis Plan seeks to by-pass the crisis in storage. According to this plan, a service-library need not store all the periodicals. This responsibility is vested only in a national or regional central library. This latter library should have a copy of each periodical and of every other publication in transparent paper. This has been demonstrated to be possible by the experience of Holland. Any reader can purchase a dye-line copy of any document from the central library through his service-library. The cost is only about one shilling for a document of 8 pages.

22 Bernal Plan

The Bernal Plan would bypass even the printing of the documents if they are of a severely specialised nature needed only by a few special-

ists. The originals of these documents would be kept in the central library concerned. They will be brought to the notice of probable consumers through the abstracting periodical. Copies of any of the documents could be got by any reader from the central library through his service-library. //

23 A Possible Disadvantage

But such a supply of copies of documents on demand by mature specialists does not exhaust all the purposes for which periodicals were designed as a means of communication. The permeation of nascent thought among a vast number of people in anticipation of demand is a great necessity for the up-keep of research-potential. There is no means of knowing who is ripe at what moment to get irradiated by what nascent thought. Again new minds, in the formative stage, have to be induced constantly into the research-team of the world. The specific areas of their interest are yet to be formed. Feeding them on as wide a field of the universe of knowledge as possible is as much an important function of periodicals in intellectual economy, as giving the sought-document to mature specialists.

24 Point for Investigation

This factor needs investigation in the evaluation of the Donker Duyvis and Bernal Plans. This seems to have been missed in DC. The terms of reference mentioned in its proposal L should be extended to include this vital point in the social function of periodical literature. In place of proposal L, we should have the following proposal:

Proposal L: In view of the increasing inadequacy of the scientific periodical as a method of communication, a long-term study of the whole problem should be commissioned. Its terms of reference should include the following aspects: (a) a plan based on Bernal's scheme for the central distribution of scientific publications (modified where necessary) and a preliminary investigation of its acceptability to scientists; (b) the relationship of the technical research report to

the traditional paper in scientific periodicals and its integration into the abstracting and indexing structure; (c) consideration of what in principle should be accepted as 'constituting publication' (academically, legally and copyright point of view) in relation to the 'unpublished scientific report' and the various levels of security classification.

Suggested Proposal:

1 In settling the fate of the institution of periodicals, Unesco or any other international organization should arrange for a global investigation with due weightage for all the social purposes of periodical literature such as:

- a. means of communication almost to the narrow point of locating the sought-document by the mature specialist;
 - b. permeation of nascent thought among a vast number of people in anticipation of demand with the result of increasing the research-potential of the world, remembering that we have no means of knowing who is ripe at what moment to get irradiated by what nascent thought;
 - c. induction of new minds in the formative stage into the right place appropriate to each mind in the research team of world - new minds whose specific areas of interests are yet to be formed and are therefore in need of being fed with as wide a range as possible in the spectrum of the currently developing universe of knowledge;
 - d. helping the evaluation of any scientific paper which is now indicated by the status and standard of the periodical in which it appears;
 - e. being a helpful incentive to research workers - the incentive arising out of the status and standard of the periodical in which his paper appears.
2. Over and above this, the following proposals are made:
- a. an examination of the nature of present scatter of papers in a specific subject in diverse periodicals inclu-

ding those with the least affiliation to the subject;

- b. the exploration of the possibility and the means of persuading the sponsors of learned periodicals to minimise scattering of papers in the manner referred to in (a) above.

3 GAPS IN COVERAGE

Proposals I, J, K, M, and N of DC are turned on the filling up of the gaps in the coverage of current documentation work. These should be certainly implemented.

31 Extension of the Scope

In this connection, an additional problem to be investigated by Unesco is bringing into the coverage the micro documents embodied in the various languages of Asia, Africa, and Eastern Europe, which are fast becoming media for current nascent thought.

4 DOCUMENTATION WORK

The proposals of DC considered so far and the additional ones suggested in relation to them fall largely within the sphere of international organisation, in which the library profession is only one of the partners. But the construction of documentation list - be it an abstract or index in published form, or in the form of cards or its equivalent, and be it in a central library or in a service-library - is the sole responsibility of the library profession. It is here that DC distinguishes between new and old techniques. Generally speaking, retrieval by machinery is the focus of the new techniques; on the other hand, retrieval by the visual scanning of the documentation list is the focal point of the old technique.

5 MACHINERY FOR RETRIEVAL

Machinery for retrieval may range from the simple punched card to the super-electronic searcher. The design of all machinery other

than the simple punched card belongs to the sphere of the technologist. Proposals A to H of DC are turned on this problem.

51 A Serious Omission

But DC overlooks an important factor. That is in relation to the co-operation between the technologists and classificationists. All the steps in modern classification - from facet analysis to the translation of isolate ideas into isolate numbers - should be done by the library profession prior to these numbers being coded for the machinery. The only steps in classification, not needed by the machinery, are those of arranging the facets of a document in a preferred sequence and of synthesising the isolate numbers and the basic number into a class number. The crisis caused by the cascade of new nascent thought has created many difficult problems in the sphere of work of the classificationist. Unless these are satisfactorily solved, the machinery cannot deliver the goods.

52 A New Proposal

I should therefore propose that steps should be taken to solve the problems in the design of classification.

The International Study Conference on Classification and Information Retrieval held at Dorking in May 1957 has brought out the importance of this task.

53 Co-operation between Classificationist and Technologist

In the investigation of these proposals, the intimate and sympathetic cooperation of the technologist and the classificationist should be secured. The classificationist should take into consideration the special needs of the technologist, if any, in the designing of isolate numbers and basic numbers. Reciprocally, the technologist should see to it that his demands do not unduly curtail the freedom of the classificationist in designing the scheme of classification, which has to serve many purposes other than information retrieval, at its mechanical level.

For example, though the technologist might prefer a short base for the notation to minimise the cost of reducing the class numbers to the binary language of the machinery, the classificationist has to use a very long base of mixed notation in order to make the synthesised number as short as possible for use in service-libraries.

Again, though the technologist has no value for seminal, or alphabetical, or scheduled mnemonics, the classificationist needs them all in abundant measure in order to give the greatest possible autonomy to the classifier - and this is necessary to minimise reference back to the classificationist and the holdup of current documents of a new character caused by the ever-turbulent universe of knowledge throwing forth at all times and in all facets either newer or sharper isolates.

Again, though the technologist is not interested in having expressive class numbers but is perfectly satisfied with even random numbers without any semantic content whatever, the classificationist has to make his class number as fully expressive as possible of all the relevant elements in the make-up of the micro thought classified, in order to facilitate mental comfort and unerringness for the reference librarian and the classifier and the book-selection librarian.

54 Escapist Attitude

The above mentioned areas of conflict lie in the notational plane. But the work in the idea plane falls entirely within the jurisdiction of the library profession. But unfortunately, the first effect of the advent of the technologist into the field has been to throw the profession into a mood of escapism. It seems to have thought, "So long as there is a technologist to produce his machinery for search, everything will be all right and we need not bother ourselves beyond pressing the button." The Dorking Conference demonstrated the recovery of the profession from this escapist mood. But DC has

overlooked this. Its over-emphasis - at least quantitatively - of the so-called new techniques of retrieval by machinery, and the total neglect of the work to be done by the profession itself are the result of this overlooking. There is now much of ex cathedra opinion about the points of contact between machinery and classification.

55 A New Proposal

Unesco will be doing useful service if it can promote an objective study of the problems in the region of overlap between classification and machinery for search, jointly by the designers of classification and of machinery.

The Dorking Conference isolated this as one of the problems for pursuit.

6 AN ANACHRONISM

The blind dependence on machinery and the neglect of the cultivation of the field of classification is traceable to a historic accident. The World War II precipitated the crisis mentioned in section 14, much before the modern progress in classification had permeated sufficiently into the profession. With only a largely enumerative and hardly individualising classification within its practice and without even having consciously seen the possibility of a symbiosis between classification and the setting up of subject headings in the catalogue, the profession was taken unawares by the sudden challenge of the happenings in the universe of knowledge and by the sudden demand from the war office and the industries to organise the downpour of micro thought. As time was of the very essence of such war-demands, some relief was sought from machinery to gain speed of work. In the escapist mentality that followed, all the other purposes of classification were given up without thought. But, now the profession is becoming fully aware of the advent of analyticosynthetic, individualising, and even expressive classification. It has also seen the large-scale demonstration of the efficiency of the chain procedure in mechanising the establishment of subject headings with the aid of class number, and, what is of even greater importance, the large-scale demonstra-

tion by the British National Bibliography of the wonderfully and exhaustively complementary functioning of the classified and the alphabetical parts of the documentation list, brought about by the chain procedure. This symbiosis had been indicated as early as 1938 in my Theory of library catalogue and brought into relation with the problem of machinery as early as 1950 in my Classification, coding and machinery for search, published by Unesco. DC does not show any evidence of a knowledge of this change in the outlook of the library profession. Let us not perpetuate the anachronism.

61 The Full Proposal for Investigation

1. I, therefore, urge that Unesco or any other international organisation should promote an objective all-round comparison of the advantage and disadvantages of:

2. Visual scanning in a documentation list built with the aid of a co-existensive or individualising and expressive scheme of classification, a helpfully distributed system of guide cards or feature headings in the classified part and an alphabetical index answering:

- a) every kind of approach to a specific document such as through name of author or title; and
- b) every kind of approach to a class or subject with the aid of chain procedure which provides class index or subject headings for all the sought isolates in any chain or hierarchy of classes so that whatever be the class, greater or smaller in extension than the specific one relevant to the researcher's need at the moment, he is helped to land himself in the proper region of the classified part of the documentation list where the panorama of the guide cards or feature headings will guide him to what he had been looking for consciously or unconsciously.

3 These investigations may be made at three levels:

- 1) in service-conditions within a service library;
- 2) in a national or regional documentation centre; and

3) in an international bibliographical service.

4 The comparative study should be made jointly by the library profession and that of management-specialists. This study should cover the whole range from the Therbiggs of mechanical operations right on to the economics of the cost of setting up, maintenance, extent of use, and replacement due to obsolescence of the catalogue entries in the one case and of the machinery in the other. There should also be a comparative study of the reaction of readers of various degrees of specialisation, by a committee consisting of psychologists and public-relations men, to the service given by the visual scanning in the properly constructed catalogue and to the machinery for such search. From out of these reports, a finding should be got: in what classes of libraries or documentation lists, visual scanning should be used and in which machinery should be used for literature search.

62 Copying and Visual Scanning

There is also another problem requiring attention. In the case of libraries or in the case of documentation lists where visual scanning has to be used, it may occasionally happen that a reader desires to have the entries sought by him to be copied. Or it may happen that a copy of such a special documentation list suited to a particular country has to be sent to an absentee reader. I had always felt that there should be some means of saving time in this kind of work. A cheap and quick method of doing this work without the removal of the cards from the cabinet for too long a time should be devised.

7 SOCIAL SCIENCE DOCUMENTATION

There are some points in DK, which are not found in DC.

71 Abstracts

One of them, covered by recommendations 6 and 7, concerns abstracting periodicals. ISO/TC46 has seized this problem and an international standard is well on its way. Since the social sciences are entering the stage of abstracts only now, it is wise to prevent wastage by overlapping among the various agencies entering the field. It does not appear to be helpful to have a single Abstracting Periodical for all the sectors of social sciences. If, therefore, we have different abstracting periodicals, there is bound to be some unavoidable overlapping. This should be allowed.

72 Terminology

The second point, covered by recommendations 8, 9, and 10, belongs to the verbal plane. In this matter, nothing more than the enunciation of a few general principles will be possible at the international level. Setting up of a standard terminology free from homonyms and synonyms falls entirely within the sphere of each linguistic group. Apart from this, this problem is hardly within the domain of the profession of documentation. It can at best point out the need for it. The actual work belongs to subject specialists.

73 Standardisation of Statistical Data

There can be no two opinions about the need for an international standard in the collection and presentation of data in the social sciences, covered by recommendation 11. But the difficulty will be far greater than in the natural sciences and their applications, because of political and other emotional factors and the intrinsically greater elusiveness of the units of measurement to be used in the field of social sciences.