Suggests a process for integrating the essential activities in a documentation center with a view to streamline the different job patterns into a smooth and fast workflow. The proposed system aims to blend diverse job patterns into an unified operation to reduce expenditure, eliminate wastage, and ensure a fast service.

Introduction

Some industrial concerns maintain technical libraries, but generally no separate section or personnel for documentation service. The reason may probably be that documentation centers as a whole are yet to establish their worth. Unless expenditure incurred over them bring substantial returns to the parent industrial concerns, nobody would ever think of having them.

Lack of planning at the initial stage leads to disoriented efforts at launching documentation services not quite suited to the needs of the clientele to whom they are supposed to serve. Their services mostly seem to center around the regular publication of a list of titles of current scientific periodicals, covering the disciplines pertaining to their fields of activity. This current awareness service has only a limited utility. A documentation center should, in fact, be able to render more useful services, provided its activities are so coordinated. The procedure for such coordination is explained in the latter part of this paper with a hope that it may help to set a pattern for an average documentation center which may either function as an independent unit or form part of a technical library. There, the function of collection, processing and storage of scientific literature belongs to the technical library which entrusts the job of dissemination of information, so acquired, to its counterpart - the documentation unit.

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Conventional Processes

The conventional process, generally followed in technical documentation center for dissemination of information can be summarized as follows:

(1) Current Awareness Service: The purpose of this service is to process information in a systematic form for speedy dissemination to its clientele. Catalogue cards or slips, containing bibliographic citations are prepared and then arranged in the desired order. The typed matter, on stencil, is then cyclostyled and distributed. But, when lists of abstracts instead of citations are prepared for distribution, then delay inevitably creeps in. The speed of dissemination, which is the essential feature of the CAS, loses its quantum, and then the service can no longer be termed as CAS.

(2) Indexing Service: The slips, left over after the list of titles have been prepared and circulated, are merged continuously, which forms a classified or alphabetical index to the store. Documentation centers with progressive ideas are now adopting uniterm indexing which is one step ahead of the conventional indexing system. If this system is followed, then it becomes necessary to enter the bibliographic citations in the form of a running list on separate sheets of papers. The keyword from these citations are entered in uniterm cards which are used as subject profile for the SDI service where it is in use.

(3) Keywords from the uniterm card file are matched against the user profile or a set of keywords, supplied by the clientele. In such cases, catalogue slips, originally prepared for the CAS, become redundant. Also, if list of abstracts are issued, then it becomes necessary to initiate separate services for the CAS and SDI. The SDI service, being of com-
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paratively recent origin, has yet to find a place in documentation centers.

The duplication of labour, and the spare material not subsequently needed, leads to an additional expenditure which becomes unavoidable in the absence of any better workflow system. To devise a common base, from which all the aforesaid services may flow, is the crux of the problem which needs earnest attention of all documentalists.

Before going into the details of the proposed system, we may examine the conventional workflow pattern in documentation centers:

All scientific literature, excepting books etc., which are received in the library, are sent to documentation unit provided there are adequate number of subject specialists for their quick disposal. But, if they are posted outside the documentation unit, then these materials are circulated among them.

The reverse side of the title pages of the periodicals etc. are pasted with printed slips indicating the names of such subject specialists, dates of receipts and returns, pages marked and columns for initials. The subject specialists scan the articles etc., contained in these journals, and mark them consistently, for example, single tickmarks may denote articles which should only be cited, double tickmarks for useful articles for which only indicative abstracts are to be prepared, and triple tickmarks for important research articles which should have informative abstracts.

The subject specialists underlie the keywords of titles for uniterm indexing. Where these keywords fail to describe the subject adequately, they write additional keywords by the side of the titles. Other types of markings, which may be considered as more convenient, are also adopted for the same purpose. The salient point is that all incoming scientific literature should be scanned by subject specialists, and then handed over to the technical staff of the documentation unit for further processing.

If periodicals etc. are sent to the subject specialists in other sections, then the library staff has to devise an elaborate process for circulation of these materials among them. This, however, is an inconvenient process which delays service to a considerable extent.

Organisations with sufficient funds at their disposal could appoint subject specialists for their documentation unit to avoid delay in processing of materials. In such cases, subject specialists of documentation unit should have to maintain close coordination with research personnel of other sections to keep themselves informed about projects undertaken or the work that is being done there. It is, however, more convenient to make some such arrangement whereby the subject specialists would come to the documentation unit for an hour or so every day to scrutinise periodicals etc. When the job is over, the periodicals etc. will be sent back to the library for preservation.

Work Flow

Conventional work flow in a documentation unit is generally of the following order: These materials are handed over to abstractors who prepare abstracts. These abstracts are either indicative or informative as are marked by the subject specialists. Preparation of abstracts can be expedited by following certain guidelines. The author abstracts, which generally accompany the articles, can be used when found suitable for the purpose, otherwise they can be modified by addition or deletion of words or sentences. When author abstracts are not considered as adequate, the text is read, and important sentences underlined by pencil. The concluding portion or 'conclusion' giving a summary of results at the end, gives useful information or the end result. They should generally be included unless they are redundant. When none of these methods appeal to the abstractor, he may prepare the summary himself giving full bibliographic citation at the end, and insert it within the periodical for typing. The periodicals etc., thus abstracted and marked, are handed over to the cataloguers for processing. If SDI service is in operation, then the cataloguer types bibliographic citations of all tick marked articles on thick ledger papers (fullscap size) with running serial numbers. Keywords of titles of articles, which have been marked, are underlined, and additional keywords, added by subject specialists, are cited in the margins. The pages, thus typed, will present a list of articles or chronological bibliography of scanned articles. This chronological array is necessary for preparing uniterm index file subsequently. Indications for articles which have been abstracted, asterisks
are typed against the serial numbers of articles which bear tickmarks against their titles. These articles form an inseparable part of all cited entries.

**Basic Services**

A modern documentation center should be basically concerned with certain fundamental services which can be categorised as follows:

1. **Central Information File**: As the name implies, the CIF is the main store of information for documentation services, and generally consists of cards (20 cms x 12.5 cms) containing complete bibliographic information of literature (periodical articles, symposia proceedings, patents, reports, standards, and other micro documents) relevant to the needs of the organisation. Generally, the CIF is bipartite, consisting of a classified file of main entries, and an uniterm index to it.

But, the proposed system envisages adoption of a modified version of the Central Information File wherein individual entries from Current Awareness Bulletins will be cut and pasted on one side of the card while the reverse side will contain abstracts for selected articles. These cards are then arranged according to their accession numbers to facilitate their recall for the SDI service. Thus, classification is dispensed with resulting in saving of time and labour, but the CIF cards, prepared from the CAS Bulletins, present a disorganised look to a layman due to their arrangement according to accession numbers. Such an arrangement, no doubt, fits in with the SDI service based on uniterm indexing. This is unavoidable, but still some sort of refinement can be injected into it. All the scanned periodicals will be sorted into separate piles according to their subjects so that the entries prepared from each pile represent some particular discipline. These piles of periodicals are taken up successively for processing. Thus, each of the regular CAS bulletins contains a list of literature on some particular discipline. Thereafter, the CAS cards can be interposed with numerical guides, and also with guides for subjects and their respective periods of publication.

2. **Selective Dissemination of Information (SDI) service**: The SDI service aims at providing personal service to the scientific personnel by bringing to their notice only those new items of information which are of interest to them. When the service is computerised, an electronic digital computer compares the subject interests (user profile) of a client with the subjects covered by each document entering the information system (subject profile), and prints out only those items which sufficiently match his interests. It also incorporates feedback allowing progressive tailoring of the service to the needs of each individual.

As electronic digital computers are beyond the reach of average organisations with limited financial capacity, it is advisable to design the system in such a way as may be amenable to operation by manual methods. In such cases, the subject profile consists of two parts i.e., Central Information File, and an uniterm index to it.

Here, the retrieval mechanism will be based on visual matching of uniterm cards.

3. **Current Awareness Service (CAS)**: The CAS is an index of documents (i.e., periodical articles, reports, standards, translations etc.) which are currently received in the library. Being essentially a local documentation activity, oriented to the programme of the work of the organisation, it is maintained as an alerting service to keep the scientists informed about the current developments in science and technology. The speedy developments in science and technology. The speedy dissemination of recent information, and not the number of articles reported, forms the main criteria of the service.

Not knowing what to do, most of the documentation centres seem to be primarily concerned with CAS service which should only be the means to an end, and not an end in itself.

It is time to realise that the information explosion has gone beyond the control of the CAS, and publication of the announcement bulletins only adds to the burden of search regularly by the scientific personnel.

The CAS bulletins should emerge as the byproduct of the CIF because the latter forms the base for SDI service which should assume major importance, and the CAS exist there as a collateral service to it.
The layout of entries of the subjectwise CAS bulletins, as proposed, is illustrated below:

Cement Production and Control

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Bibliography</th>
<th>Added Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>*73.</td>
<td>Staron I: Preparation of dense magnesite from the dust collector of rotary kiln. Refractories (Eng. Tr. of Ogneupory), No.3-4, March-April 1968, 253-57.</td>
<td>Electrostatic precipitator, cyclone, dust sintering, granulation.</td>
</tr>
</tbody>
</table>

Continued
<table>
<thead>
<tr>
<th>Reference</th>
<th>Author(s)</th>
<th>Title</th>
<th>Journal</th>
<th>Volume, Issue, Pages</th>
<th>Year</th>
<th>Keywords</th>
</tr>
</thead>
<tbody>
<tr>
<td>*85.</td>
<td>Stuzik E.</td>
<td>Refractory plastics, castables, and gunning mixes used in German cement works for the last five years.</td>
<td>Zement-Kalk-Gips</td>
<td>58(6), 279-82.</td>
<td>1969</td>
<td>Repairing, relining, rotary kiln.</td>
</tr>
</tbody>
</table>

**Note:**
1. The arrangement of entries is in alphabetical order - first according to titles of journals, then surnames of authors and titles of their articles.
2. Asterisks (*) at the left of reference numbers indicate that abstracts for the corresponding articles have been prepared and stored.

**Courtesy:** CRI Current Contents (Publisher: CRI of India).

(Clippings, bearing individual citations from such cyclostyled bulletins, are pasted on the reverse sides of thick cards of size 20 cm. 12.5 cm. each. Abstracts, indicative or informative as indicated by asterisks, are then typed on their reverse sides. This set of cards, constituting the Central Information File, is used as a subject profile for the SDI service.)

These typed sheets are then passed on to the indexer who will prepare fresh uniterm cards for new keywords, and enters the serial numbers of other entries into the file of existing uniterm cards. This array of uniterm cards constitutes the "subject profile" - a storehouse of information awaiting recall and dissemination on demand. The research staff, who are engaged in scientific investigations and need up-to-date information regularly, sends their "user profile" i.e., a set of keywords supposed to give an outline of the subjects they are interested in. By visual matching of the user profile with the subject profile at regular intervals, bibliographies, consisting of useful information regarding published literature on the relevant subject, are prepared and supplied to them at regular intervals.

Where a "project oriented" service is considered a necessity, the abstracts and citations are classified according to some suitable classification code. The classified sequence of entries, ensuring a subjectwise arrangement of entries, facilitates their easy scanning. The matter from the thick ledger sheets are then reproduced on stencils, cyclostyled and distributed. The list or the CAS bulletin, thus produced, may contain a table of contents, but an index is not necessary if the literature presented therein is not voluminous. This cyclostyled list of titles, reproduced from ledger sheets and published at regular short intervals, will provide CAS service to the researchers. If a classified list is favoured, then all the classified entries are classified according to some standard classification code. The process, however, then becomes an elaborate one. The entries from ledger sheets will then be transferred to some catalogue slips individually by typing. Serial numbers of these entries will also be entered on those catalogue slips. If classified arrangement is preferred,
then these entries are broadly classified according to their subjects, aligned in that order, and typed on stencils with the addition of appropriate headings or subheadings. A condensed classification code, containing broad classification numbers of some standard classification code and covering specific subjects of choice, should preferably be prepared, otherwise much time is likely to be wasted in consulting a schedule of classification. Variations of these processes are also adopted, for example, stencils can directly be typed from slips in the same way as on ledger sheets.

Proposed System

The proposed system, integrating the Current Information File, Current Awareness Bulletin, and Selective Dissemination of Information can be brought about ensuring fast and economical service cutting down cost and duplication of labour involved in getting them done by the aforesaid conventional processes. The breakthrough comes when the matter is typed only once on stencils, which forms the base for all subsequent operations and the intermediate process of preparing catalogue slips is eliminated. This method, which is quite simple, needs to be described.

The incoming periodicals will be scanned, and all articles therein appropriately tickmarked for their citations, abstracting etc. Bibliographic citations with asterisks for all tickmarked articles will be typed directly from the literature on stencils instead of on ledger papers. These cyclostyled sheets will, thereafter, be stitched into Current Awareness Service bulletins and distributed to those who need them. The cyclostyled bulletins, which may look like the "Current Contents" (Published by the Institute for Scientific Information, Philadelphia) will very well serve the need for a CAS. Thereafter they will be passed to the indexer for posting in uniterm index. These cyclostyled sheets, containing citations, will be used to compile a Central Information File in card form. Printed matters, consisting of citations, keywords and respective serial numbers, will be cut out of the cyclostyled sheets with scissors, and pasted on thick cards (20 cm x 12.5 cm.). Each card will have only one entry pasted on it. The Gir and the uniterm index to it will be used as a base for SII service. The short list of literature or extract from the CAS bulletin, cited earlier, may be used again to illustrate the point. The CIF can be considered as the subject profile. Now, suppose a user profile, received from an enquirer, consists of the following keywords:

Cement clinker, grinding, grinding aids.

Through visual coordination of uniterm cards or punched (if they are in use), the following serial numbers are found to be concurrent:

71, 83, 84.

The bibliography, compiled against the user profile, will have the following form:

SELECTIVE DISSEMINATION OF INFORMATION SERVICE

User Profile

Keywords
1. Cement clinker
2. Grinding

BIBLIOGRAPHY

*71. Opoczky L


83. Schneider H.


*84. Seebach H.


From the Central Information File, cards, bearing the concurrent numbers (71, 81, 84) are taken out and consulted. Since, abstracts, prepared separately or indicated by underlining relevant sentences, are afterwards typed on the reverse sides of the GIF

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cards, one can immediately consult them, and have a fair idea about the topic at hand. The underlying idea is to narrow the timegap so that by the time a CAS bulletin is issued, the Central Information File is ready for the SDI service.

Thus, it will no longer be necessary to type entries separately on ledger papers, or on cards, and then repeating the processes all over again to prepare CAS bulletins from entries contained on ledger papers. The process, as suggested, envisages that all matter should be typed on stencils only once, and then all the subsequent services will flow from it. The set of uniterm cards will serve as an index to the CIF. Cards from the CIF (Central Information File), when pinpointed by the optical coincidence method, can immediately be taken out, consulted and replaced. Thereafter, the readers can decide if it is necessary for them to consult the original literature. Obviously, the guiding factor in these operations is the streamlining of different technical processes into an unified one whereby the CAS, CIF, and SDI services are combined to minimise the number of operations with less consumption of time and expenditure which would not be possible through the conventional systems.

If an organisation acquires major important periodicals etc. relating to its fields of activities, then it can be assumed that the researchers working there will be able to get useful and current information through these services.

Conclusion

The present trend towards adoption of documentation techniques for dissemination of information makes it imperative to undertake workstudies for enhancing the efficiency and setting a pattern for fast and economical service. Various techniques of documentation have been over the years, but systematic workflow, based on these processes, for blending multiple channels of approach to an unified one needs to be studied and perfected.