A. J. WELLS
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OBJECTIVES

R:- Of all the national bibliographies, I feel that the BNB has achieved much more and that too more quickly than any other. I have a feeling that it does many more things than those it was originally intended to do. Can you recall the objectives with which the BNB was started in 1950?

11 Weekly List in Broad Subject Groups
W:- The original objective of 1950 was set up by a planning committee. It was intended that the weekly publication should be a list of current British publications in classified sequence. The original conception of this classified presentation was one of rather broad groups, in which the entries would be arranged by the names of the authors. Each entry, however, was to bear a fairly co-extensive class number, rather after the plan of the British Book News.

12 Monthly Author Index
For this reason, it did not seem necessary to provide an Author Index in the Weekly List. But, for additional convenience it was decided to publish a Monthly Author Index.
13 No Class Index

Because of the large groups in which the subject entries were to be arranged, it did not seem necessary to provide a Class Index.

14 Detailed Class Number

In spite of the fact that Bibliography was to be in broad subject-groups, a detailed class numbers were to be given to the items, as it was thought that the libraries would require them.

15 Cumulation

In addition the original plan was to cumulate the Monthly Author Index and the broadly classified parts into an annual volume.

2 ACTUALITY IN 1950

Ri- Did you carry out this plan set by the Council or did you alter it to any extent in the very first year?

W: - I felt that it was impossible to handle the subject approach to an estimated 15,000 items a year with such broad subject-groupings. We already had an example of this method in Whittaker's Cumulative Book List, and it was partly the librarians' dissatisfaction with this list that evoked need for a new approach, in the BNB. We, therefore, modified the original plan in a number of ways.

21 Strictly Classified Sequence

In the Classified Part of the Weekly List, we arranged all the entries in a strictly classified sequence, on the assumption that this would be the sequence required in the annual cumulated volume.

22 Annual Class Index

Although we were not able to provide a Class Index along with the Author Index each month, we prepared for the publication of a Class Index in the Annual Cumulated Volume.

These were the two changes we made before the publication started.

3 FROM 1951 ONWARDS

Ri- Can you review what changes were made since 1950?

31 Weekly Author Index

W: - The Weekly Lists, providing, as they did only a classified sequence, made it difficult to find a specific publication. They were useful for systematic approach against subject background, but they presented too many difficulties for any other approach. When it was required to find details of a specific item of which author and title were known, it was necessary to translate the name of its subject into its DC Number. This was often an impossible task. So to make the BNB a complete tool we had to provide an Author Index every week. Even in this, we only took one step towards the final goal, viz. we provided only one entry under the name of the author in the Alphabetical Book Index of the Weekly List, reserving entries under collaborators and series for the Monthly Cumulated Index. This we did for financial reasons. But these additional added entries were really essential to make the Weekly List a complete, self-sufficient bibliographical tool. It was not until 1955 that we were able to make the Weekly Lists completely self-supporting in this way.

32 Monthly Class Index

In 1951, we introduced Class Index Entries also in the Monthly Cumulated Index. They are still not given in the Weekly List, and the reason for not giving is three-fold:-

1. Chain Index Entries for a small number of publications would hide the other alphabetical entries.

2. The expense is hardly justified since the Class Index Entries provided each month go a long way in being of help in using the later Weekly Lists.

3. The third is a shadow reason. From the point of view of organisation, it would be
difficult to produce a Weekly Class Index without extending the administrative routine and the staff needed for it.

33 Quarterly Cumulations

In 1951, we also started publishing quarterly cumulations.

34 Change of Format

In 1951, we changed the format from demy octavo to demy quarto, at the same time reducing the size of the type from 10 point to 8 point. This change was designed

1 to decrease the cost of printing,
2 to give a greater range for a single sweep of the eye; and
3 to preserve one size of page both for the Weekly Lists and the Cumulative Volumes.

35 Feature Headings

R:- Can you tell me when you introduced Feature Headings in the Classified Part, what led you to introduce them, and what benefits they give?

W:- Feature Headings were introduced in the Classified Part in the second year i.e. in 1951.

36 Featuring Technique

It was clear that detailed classification was not by itself sufficient to express the subject structure and to guide the eye to the proper point in the classified part. Even librarians accustomed to DC found the featured catalogue difficult to use. We therefore adopted the featuring technique illustrated in your "Library Catalogue: Fundamentals and Procedure" (1948) and your "Catalogue of the Library of the Ministry of Labour of the Government of India" (1949).

37 Hidden Virtues of Featuring

Your featuring technique opened up quite a number of developments. They brought to light two hidden virtues.

1. By featuring each step in the classification, we not only help the searcher to find his way to the specific point which he wants but we also provide for the cataloguer a break-down in words of the subject-area so that he is provided with the raw verbal material for the construction of his own Subject Headings and the hierarchy of "See also Subject Entries" for a Dictionary Catalogue, and the raw material for all the Class Index Entries implied in the class number of books for a Classified Catalogue.

2. We were able to supplement the DC number by what has since been called "Verbal Extension".

These were the two powerful benefits that came out of featuring. Prior to that we only sensed them vaguely.

4 IN 1957 AND AFTER

R:- What are the still further developments in BNB introduced in 1957 or contemplated to be introduced thereafter?

41 Minor Changes

W:- In the BNB itself, the developments have been rather in details:

1. We have introduced in the Weekly List all kinds of Book Index Entries.

2. We have also introduced the practice of including Title-Entries for all items, even though the title may be fully expressive of the subject or tell-tale as you call it in your CCC, with the exception that we do not do this in the case of research monographs.

3. We have also become more courageous in the liberties we take with title-pages—that is, in deviating from the Canon of Ascertainability laid down in your "Heading and Canons" (1955) and your "Theory of Library Catalogue" (1938). We are permuting the sequence in which information is given on the title-page. We are not giving a literal transcription of the title page as for an incunabulum, be-
cause our aim is only to make the structure of our entry such as to help one wishing to obtain the book. In other words we follow a definite pattern for the title-portion of each entry, along the lines indicated in your CCC. This has resulted in economy in the entries of Multi-Volumed Books, "Instalment" Books, and Serials, using these terms as defined in your CCC, Library Administration, and Headings and Canons.

42 Need for Title-Entries

RJ- Are not title-entries redundant in the case of Tell-Tale Titles?

421 Book-Sellers' Demand

W:- The book-trade depends on Title-Entries by habit. It was on their continued representation that we finally decided in 1955 in favour of title entries for all books.

422 Librarians' Support

We have had favourable comments on this new feature of the BNB from librarians too.

423 Economy for Users

It is also helpful to users of every other kind. Let us take the title "Elements of Economics" as an example. In the alphabetical index cumulated monthly, the range to be scanned in searching for this title will be only the entries beginning with "Elements". But in the classified part, one would have to scan the entire range of the Class Number for Economics in each of the Weekly Lists.

43 User Not Remembering the First Word of Title

RJ- All titles do not begin with significant words which remain in the memory. Then, the user may not bring up the First Word of the Title to the BNB. Are you able to help them in any way?

W:- It is obvious that a person not remembering the first word of the title cannot get any help from our title-entry. He has to depend entirely on the Classified Part. Of course, he could be helped if a title-entry were made for each book, using each of the words in its title as the Entry Word. Economic consideration make this impracticable.

An example arose sometime ago. The title was "Dear Mrs Boswell". The part remembered was "Mrs Boswell". It could not be traced through the alphabetical part. However the book was connected with James Boswell. Therefore, the Class Index Entry under "Boswell" appearing in the Monthly Cumulative Index led to its location in one of the Weekly Lists.

On the other hand, if it were the title of a novel, it could not be traced at all with the information supplied by the reader.

RJ- We had a similar case with the misleading title "Biography of Johnson" which was the biography of a dog.

44 Major Developments

You have mentioned the developments in detail. Are there any major developments in policy, objectives, or coverage?

441 Quinquennial Cumulation

W:- The first major development was the decision to provide a quinquennial cumulation. It was first hoped to cumulate the whole of the catalogue - the classified part as well as the alphabetical part.

442 Financial Handicap

Unfortunately we had no money with which to finance such cumulations in advance. This would have meant paying for the cost of renting the standing type-material, as well as the cost of printing and paper. These we could not afford.

443 Poor Response

We therefore circularised our subscribers asking if they would support a complete cumu-
lation of the first five years and if they would be prepared to pay part of the cost in advance. The response was so small that the plan was abandoned and the type was broken up.

444 Cumulation of the Alphabetical Part Only

Instead, we financed from our own funds a five-year cumulation of the alphabetical part alone. This - the Five Year Index from 1950 to 1954 - was published in 1956. To do this, the pioneering staff of the BNB did not mind working long hours for several months. It has turned out in the event that this Five Year Index has received much more support than could have been inferred from the replies.

445 Stimulus for Cumulation of Classified Part

What is more, the Cumulated Alphabetical Index has stimulated the desire for the cumulation of the Classified Part. It seems clear that if we had had the funds to arrange to produce this at the very beginning, it would have paid for itself. As the type-metal had been broken up, it seemed impossible to produce it. But as the demand has grown in the last few years, we have looked into ways of producing the cumulation without re-setting the type.

446 Photo Off-Set Printing

Our experience with the Card Catalogue Service, (described later in section 7) gave us a method for handling this problem. The individual entries were cut out from the classified part of the individual annual volumes and mounted for photo-off-set printing. We are in the process of doing it for the four-year period 1951 to 1954.

447 Omission of 1950

R: - Why are you leaving out the entries of 1950?

W: - We have had to leave out 1950 because the volume for this year - our first year - was set to a different measure and there was a change of format and type-size in 1951, as already mentioned (section 34). This shows how any fault or shortsightedness in the original planning of details will lead us in the long run into insuperable difficulties. This truncated cumulation of the Classified Part is scheduled for publication in 1958. The future quinquennial cumulations will come out more promptly we hope, as we have been able to eliminate the difficulties and errors which crept into the first one.

448 British Catalogue of Music

R: - What is the relation of the new British Catalogue of Music to the BNB?

W: - The BNB does not include Music. The musical interests in this country - the United Kingdom Branch of the International Association of Music Libraries, the Music Publishers' Association, the Central Music Library, and the Library Association - have several times asked the Council of the BNB to undertake the publication of a Bibliography of Music. Until 1957, the financial position of the Council has been such that it was not possible to add substantially to its commitments. But in November 1956, the Head of the Music Department of the British Museum offered to make available for publication by the Council of the BNB the entries for Music produced by their cataloguers. The Council immediately agreed to undertake the necessary editing of this material and the preparation of the British Catalogue of Music based on the principles of the BNB. In this catalogue, we are providing a concrete application of the non-hierarchical notation proposed by Coates, though the work of classification in the idea plane will be based on Facet-Analysis.

5 CLASSIFICATION

R: - As you know, I am eagerly looking forward to this new experiment of Coates in the notational plane. It really amounts to setting aside the Canon of Relativity and to some extent the Canon of Expressiveness also, both belonging to the notational plane, without prejudice to the Canon of Helpfulness which belongs to the idea plane.

Can you describe your experience in the discipline of classification, gained in the organisation and development of the Classified Part of the BNB?
Wells:- I take the view that a subject catalogue whether of the dictionary or classified type must be capable of revealing specific subjects. For this purpose, I decided that the techniques you have developed in association with your Colon Classification - viz. the technique of analysing the subject of a book and the complementary technique for class index entries - had somehow to be applied in the context of a classified catalogue based on DC. In addition to obtaining specific places for multi-faceted subjects we need a technique for preserving consistency of work among the classifiers, and for preserving a consistency of pattern in the classified part of the catalogue, and a technique for synthesising the results of the analysis of the subject.

51 Facet Analysis and Chain Procedure

My study of the Colon Classification and of your books - Prolegomena, Fundamentals, and Elements, all on classification - had convinced me of the helpfulness both of your method of Facet Analysis and of the symbiosis implied in your Chain Procedure.

52 Five Fundamental Categories

It had been decided by the original organizing body to use the DC. So we set about applying these techniques to it. When we came to apply the Facet Formula to DC, we became even more aware of its structural defects. Many of these we have been unable to overcome, because they have been rigidly built into the notation of DC. Such defects had to be defined and noted for the benefit of the classifiers. For the rest, the process of classification in the idea plane is to throw the subject of the book into the mould of the Facet Formula stated in terms of your Five Fundamental Categories of PMEST - Personality, Matter, Energy, Space, Time.

53 Translation into Numbers

The next stage is to find out in DC the Isolate Numbers in the first facet and to add notation to the Isolate Ideas in the subsequent facets, so far as DC allows.

54 Verbal Extension

In 1951, we hit upon the idea of extending DC where its scheduled notation stopped short, by verbal extension marked off by the symbol [1]. This symbol turned out to be a useful invention. We gave it a special ordinal value between 0 and 1. Its invention enabled us to satisfy the DC Board's requirements that no practitioner should add any more numeral digits to a DC number.

55 Value of Facet Analysis to Classifiers

R:- Have you found Facet Analysis based on the Five Fundamental Categories to be of real value to your classifiers?

W:- The value of the technique of Facet Analysis to classifiers is many-fold

1. It gives a consistent pattern in the classified part of the catalogue.
2. We are able to place a complex subject in a unique place in the sequence of classes.
3. Classifiers develop a consistency of work which was previously unknown.
4. The necessity to build a Code for Classifiers, such as Merrill's, is bypassed.
5. Everything which needs to be told is contained in a few fundamental rules and there is little need to have special rules for different subjects and situations.

56 Benefit of Facet Technique to Users

R:- Apart from the value to classifiers, does the Facet Mould get reflected in the printed bibliography? Does the user get any benefit from it?

W:- We have not made any practical tests to decide as between this method and any other. But I think that the recurring pattern produced by the Facet Formula is absorbed by the user, unconsciously in most cases. To put it at its lowest, this recurrence of pattern must be of greater help to the user than no pattern at all.
57 Increasing Concreteness

Moreover, although one cannot say this with scientific evidence to back it up, the sequence of increasing concreteness, brought about by the Facet Formula, appears to reflect a common human pattern of thought and search.

58 Ease of Reference and Feature Headings

The sequence of classes in the classified part is helpfully displayed to the user by the adoption of feature headings. As already stated (section 36), this is another practice taken from your book "Library Catalogue: Fundamentals and Procedure". It broke with traditional British practice in presenting a classified sequence. There is plenty of evidence to show that the Feature Headings have caught the imagination of the user of the BNB. Because of the way in which they improve the ease of reference, it has generated new interest in the classified form of the catalogue.

6 CHAIN PROCEDURE

R1- Have you anything to say about your experience in building the Alphabetical Part of the BNB?

61 Weakness of the Western Method

W: - The accepted method in the West for indexing the classes of a Classified Catalogue was to adapt the Subject Headings originally compiled for the Dictionary Catalogue. I had already come to the conclusion that this was not an effective way of indexing a Classified Catalogue, though it was not until I read your books - Theory of Library Catalogue (1938) and the CCC (Ed. 2, 1944) - that I began to see where the weakness of the Western method lay.

If the Subject Headings furnished for use in the Dictionary Catalogue are used, the sequence of headings and subheadings in the Alphabetical Part is the same as that of the feature headings in the Classified Part. This is, of course, because the facets in the class number follow that sequence. By this method of building the class index entries, both the Classified Part and the Alphabetical Part help the searcher in precisely the same way, leaving the searcher, who approaches his subject in alternative ways, quite unaided.

62 Provision for Alternative Approach

Therefore we came to the conclusion that the Alphabetical Part should not do exactly just what the Classified Part does, but should be made to provide alternative approaches. In other words, the sequence of headings and subheadings in the Alphabetical Part should be the reverse of the sequence of the facets and the isolates in the class number. This is exactly what your Chain Procedure achieves.

63 Difficulties in Applying Chain Procedure

In adopting Chain Procedure, we ran into some difficulties at the beginning. These arose in relation to the structure of the DC Numbers. The missing links, the obscure links, and the unsought links in the chain of a class number were the cause of the difficulties.

631 Missing Links

The structure of the DC Number frequently omitted the steps in the hierarchy. The missing links had to be discovered and inserted. Here is an example. In the main class "2 Religion", we failed to provide a class index entry for "Christianity", because this link nowhere appears though it is implied in the subclasses 220 to 280. In order that a class index entry for "Christianity" should be made whenever a subject falling in one of the classes 220 to 280 arose, we had to insert the generic class "Christianity" giving it the number 220/280. Here are other examples of such improvisation: when we get the subject "River Engineering" which has the DC Number 627.1, we find that the link "Hydraulic Engineering" is missing and we have to improvise the generic class "Hydraulic Engineering" giving it the number 626/627. We have the DC Number 621.31344 for "Synchronous Motors", but no DC Number for "Motors in General". We have therefore to improvise this class giving it the number "621.313 [1] -Motor".
632 Obscure Links

Some links are obscured in the DC structure. For example, for a long time we failed to provide a class index entry under "Biology" for subjects falling in the classes "580 Botany" and "590 Zoology", until we realized that the DC class 574 was the generic class concerned. The notation completely obscured this fact. All such situations we had to find from experience.

633 Unsought Links

Then there are the links which you have named "Unsought Links" in the third edition of the CCC. In their case, there was inconsistency among us. The cataloguer who proceeded mechanically provided class index entries for all the links. The more alert cataloguer questioned the need for entries under such terms as "General Works", "Essays", and "Theory". In order to maintain consistency, a list of unsought categories of links should be drawn up. But we have not been able to formulate the principles for the exclusion of unsought links.

64 Mechanisation of Class Index Entries

Once these difficulties were resolved, the work of compiling class index entries is largely mechanical. Discretion is still needed however in order to secure elegance of phrase without disturbing the intrinsic structure of the class index headings. We arrived at the conclusion that the first word of a class index heading should as far as possible be a substantive. By using substantives, we are sure of gathering together a set of class index entries at one morphological variant, instead of scattering them under adjectival, genetive, and substantive forms.

65 Initial Trepidation

We adopted Chain Procedure, because on theoretical grounds it seemed to be the necessary complement to the Classified Part, as it was borne out in practice in your Catalogue of the Ministry of Labour of the Government of India, in which you have used the Chain Procedure. However, I introduced it in the BNB with some trepidation as it was quite new to Western practice.

66 Power of the Chain Procedure

My fears later proved groundless, as the one thing on which there is unanimous agreement about the BNB is the power of its index in respect of class index entries. Many cataloguers throughout the country are now employing the Chain Procedure in their own catalogues. And we are asked frequently to accept cataloguers for short periods of training in this Chain Procedure. The efficiency of the Chain Procedure is the one thing on which there appears to be no disagreement.

67 Administrative Advantages of Chain Procedure

In addition to giving a better index, the Chain Procedure made for all sorts of administrative advantages.

1. There was a complete elimination of ambiguity and overlapping of class index entries, which the empirical method normally used, frequently gave rise to,

2. The fact that indexing classes was so nearly automatic enormously increased the output of a cataloguer,

3. It has made possible the building of a routine which enables the provision of the class index entries of approximately 400 books each week in a space of 3 or 4 hours. This has been made possible only because of the Chain Procedure. We have progressively built a depository of Class Index Entries on cards. This depository consists of pockets of manilla, one for each class index entry with the complete entry typed on the front flap as in the classification schedule - that is with the class number as the entry element. Inside the pocket is the class index card for the class number concerned. It also contains similar class index cards for all the established sought synonyms or alternative headings. These pockets are filed in the cabinet in the classified sequence. Starting with the class index
card for the specific class number of a book, the other upper link class index cards are easily gathered together from the earlier pockets. This gathering combined with certain other editorial process is done by one editorial assistant working for 3 or 4 hours a week. The weekly collection of class index cards arranged in alphabetical order is sent to the printer. When the printer returns them, they are distributed with equal ease and expeditiousness into their respective pockets.

I can't conceive how we could have produced a classified index every month without the use of this aid furnished by the technique of Chain Procedure. With the old method, we would have had to employ a considerably larger staff.

68 Help of Chain Procedure in Feature Headings

R:— You have given a very valuable account of the way in which Chain Procedure helps in constructing class index entries. Can you tell me to what extent Chain Procedure has been of help in constructing Feature Headings?

W:— Feature Headings too are obtained by Chain Procedure by translating each successive significant digit in the class number into its equivalent term in English, proceeding from left to right. This is just the reverse of the use to which we put Chain Procedure in arriving at the sequence of headings and subheadings in class index entries.

681 Difficulties due to Structure of DC

Here too some difficulties arose when the structure of the DC failed to follow the pattern of your Fundamental Categories PMEST. In particular, in those areas, where approach common isolates had been indiscriminately mixed up with the energy isolates special to a basic class.

For example, 770.2 has been used as generic for many energy isolates in "770 Photography", while the remaining energy isolates come after the common isolates which occupy the numbers 770.4 to 770.9 - that is they appear against the numbers 771 to 779. To illustrate the improvisations that have to be made to face this situation, a few of the Feature Headings occurring in page 449 of the BNB of 1953 are given below:

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>770</td>
<td>Photography. General works</td>
</tr>
<tr>
<td>770.28</td>
<td>General photo-processes</td>
</tr>
<tr>
<td>770.284</td>
<td>Positives</td>
</tr>
<tr>
<td>770.2842</td>
<td>Printing</td>
</tr>
<tr>
<td>770.2843</td>
<td>Finishing</td>
</tr>
<tr>
<td>770.2843 [1]</td>
<td>Toning</td>
</tr>
<tr>
<td>770.5</td>
<td>Periodicals on Photography</td>
</tr>
</tbody>
</table>

If "Photography" is not added in the last feature heading, it would read as "Periodicals on Toning".

When we came across such problems in our early days, we were not sure whether these problems were inherent in Chain Procedure or were caused by the defective structure of the DC. Experience has shown us that the latter is the cause in every such case.

7 CATALOGUE CARD SERVICE

71 Genesis

R:— When I visited the BNB Office last November, I found that you have just started Card Catalogue Service. Can you describe the genesis of this service?

W:— The original Organising Committee of the BNB grew out of a Committee of the Library Association charged with the task of investigating methods of Centralised Catalogue Card Reproduction. Their investigation led to the conclusion that a Central Card Catalogue Organisation would be uneconomical. That project was therefore abandoned in favour of the production of the BNB. This was in 1949.

At that time there was a considerable demand in Great Britain for a printed card service. In fact some librarians voiced their disapproval of the above-mentioned decision, in spite of the catalogue entry published in the
BNB providing some saving in the Catalogue Departments of the libraries.

712 Demand Died Out in Large Libraries

Mr T E Callender, then Librarian of the Lambeth Public Libraries, adapted certain addressing machinery for the mechanical reproduction of catalogue cards. It proved to be a comparatively cheap method. Within a few years of this, many of the larger library systems of Great Britain followed Mr Callender's example. The demand for a Central Card Catalogue Organisation therefore died down.

713 Demand Kept up in Small and Medium Libraries

In spite of this, there were many small and medium-sized libraries for which the use of this machinery was uneconomical. A demand for Central Card Catalogue Service was there, fore kept up by this class of libraries there-

714 Lack of Funds in Early Years

However, we were not able to provide a printed card service in the early years of the BNB because we had no funds for setting up the plant and because I felt that the traditional printing methods would prove too expensive and would bring with them storage problems which would be beyond our capacity.

715 Necessary Condition

My reply to those demanding a card service was that we could not undertake such a service unless we could discover a process which did not make use of traditional printing methods and which did not involve storage of printed cards.

716 Direction of Hope

But this despair did not last long "in the idea plane", as you say, because as early as 1951 we had come across a method of making a photo- graphic stencil which seemed to lend itself to blending with a certain type of addressing machine. Neither of these processes was actually usable as they were for the production of catalogue cards. A process of persuading the companies concerned to modify their products to suit our requirements was therefore carried on from 1951 to 1954. Our hope lay in that direction.

717 Design of Machinery

By 1955, the two processes had reached a stage where they could be blended. By that time also, we had accumulated a small reserve of capital. We therefore made it known to our subscribers that we were in a position to offer a printed card catalogue service if it was still required. It appeared from the answers that about 200 libraries would immediately support a printed card service requiring between them about 1.5 million cards. On the strength of this, we designed a machine and proposed a printed card catalogue service for 1956.

718 Unit Card System

The service was planned on the basis of the Unit Card System, which leaves the leading section in the card vacant, to be filled up by each library to convert it into any desired type of entry - Call Number Entry, Author Entry, Title Entry etc. We offered to supply any desired quantity of any desired card. We also undertook to supply cards for any document recorded in the BNB.

719 BNB Serial Number

For the ease of handling at the cards service centre, we obliged subscribers to order by the BNB serial number. To make this possible for a library to do so directly from the book itself without looking up the BNB, we are considering getting the publishers to print the BNB serial number on the back of the title-page of the book. It can be seen that ordering cards by the BNB serial number will also reduce the clerical work of the libraries concerned.
Processing

When I visited your office in November last, I was greatly struck by the simplicity, economy, and speed of your printed card catalogue service. It is quite unparalleled in any other place that I have visited. Can you describe the method you are using? Your cards reach the library within 48 hours and often within 24 hours of the receipt of the order. How do you achieve this?

W.- To answer this question, I must describe a whole set of processes. I may perhaps preface my description with this remark: Though we frequently complete the service in 24 hours, we have only announced to complete the service in 48 hours. The reason for this will be explained later (section 728).

Repro-Pulls

We begin by taking a special set of repro-pulls of the Classified Part of the Weekly List. These repro-pulls are sent by the Printers to our offices two days before the subscriber receives the Weekly List. These two days enable us to produce the necessary basis for printing cards in time for us to execute the orders based on the current Weekly List.

Master Stencil

The repro-pulls are cut up into separate entries. These are mounted on a sheet - ten to a foolscap sheet. 35 to 40 such sheets are produced in these two days. These sheets are put under a special camera one by one and photographed on to a photo-sensitive stencil - called Photo-Stencils and manufactured by Gestetner Ltd. Each stencil is processed by a method specially developed for our purpose. It is then cut into its ten pieces. Each piece is mounted on an Addressal Frame. At the end of this process, we have a separate Master Stencil for each entry in the Classified Part of the BNB. On each stencil the BNB Serial Number is stamped near the right end of the top of the stencil, so as to be easily seen both in the filing tray and when passing along the stencil track in the printing machine. The Master Stencils are filed in the sequence of the BNB Serial Numbers and are then ready for use.

Production of Central Sheet by Machinery

As already stated (section 7191) subscribers send in their orders for cards in the form of a list of BNB Serial Numbers, with the number of copies of cards required for each book. The first task each morning is to add the subscriber's code number to the order. (We have fixed a code number for each library for this purpose.) One of the biggest problems we foresaw was the reduction of the hundreds of individual orders to a single sequence of BNB Serial Numbers to facilitate bulk-handling in the further stages. After much consideration we decided to install machinery for this purpose. The machines are Powers-Samas punched card machines normally used for accounting purposes. We use a 36 column card.

The Installation

Our installation consists of two punching machines (Automatic Key-Punches); one Automatic Verifier; one Automatic Sorter; and one Tabulator.

These five machines are operated by two persons. The machines normally work in series, so that they are idle as little as possible.

Purpose of the Installation

The purpose of this installation is
1. to reduce subscribers' orders into orders for BNB Serial Numbers;
2. to assemble automatically the orders for each BNB Serial Number;
3. to arrange these orders automatically into one serial sequence;
4. to produce a printed Production Control Sheet in BNB serial sequence; and
5. to produce at a later stage, (See in section 726 and section 73 and its subdivision) detailed invoices for every subscriber and to produce monthly statements of accounts.

Printing by Machinery

As soon as the Powers-Samas installation has produced the Production Control Sheet, the
printing of cards can begin. This is done by another machine as follows. For that part of the Production Control Sheet covering current serial numbers - that is those of the Weekly Lists of the latest weeks - the whole set of master stencils are fed on to the printing machine and the selection is made by the operator of the machine. For the part covering earlier serial numbers, the master stencils are selected by hand from the storage trays.

7241 Operation of Machine

The operator of the printing machine works from the Production Control Sheet, which tells him how many copies to print from each master stencil. He has only to work two controls. They are both foot controls. One brings the stencil into the printing position. The second controls the number of copies printed. Counting devices in the machine assist the operator in working the second control.

7242 Cutting the Cards

The card is automatically fed into the machine in continuous form and is automatically cut after printing. At present owing to the method of making the continuous card, which requires it to be perforated at intervals, a margin of tolerance has to be allowed on each card and trimmed later in bulk. This is the one human-controlled operation, which we hope to eliminate. For this purpose we are experimenting with an electronic machine which the manufacturers claim will need no tolerance of error because it can be made to sense with greater precision.

725 Sorting of Cards by Hand

When the cards are printed, cut, and trimmed, they are taken to the sorting room. Here a number of sorting trays are set up, one for each library code number. The sorter also works from the Production Control Sheet. But this time, he works from the end backwards. He counts out the number of cards of each entry, required for each library, and places them in the appropriate sorting tray. In this way, he will dispose of all the cards printed for each entry, in succession. And having begun at the end of the Production Control Sheet, the packs of cards for each library will finish up with the earliest number on the top of the pack.

726 Preparation of Invoice by Machinery

R: Is the invoice for each library prepared by hand in the conventional way or by machinery?

W: It is done by the machinery. This ensures both accuracy and speed. While the printing and the sorting of the cards have been going on, the Power-Samas installation have prepared the invoices. They are prepared in such a way that the name and address of each library appears in two places on the invoice. One of these appears on a perforated strip at the top.

727 Packing without Fault

After the cards are sorted, the appropriate invoice is taken and the top-address is parted from the body of the invoice. The invoice is folded and packed with the cards in a container. The detached address slip is posted on the container and the container is ready for despatch. Everything is as automatic as possible, eliminating any possibility of error in despatch.

728 Rhythm of Procedure

All these processes from the receipt of the order to the despatch of the cards are completed in one working day of seven working hours for a daily production of about 6,000 cards. Daily output beyond 6,000 cards would require a longer time. In such a case, printing would continue into the next working day and the cards would be despatched only in 48 hours. It is to meet this contingency that we announce "Service in 48 hours", though we frequently complete the service in 24 hours. To make the maximum use of the organisation "Service in 48 hours" producing up to 10,000 cards in a cycle is implied.

After printing, any stencils extracted by the hand are refilled.
73 Follow-Up Accounting Work

Ri: How have you organised the follow-up accounting work concerned with the receipt of money for the service rendered for each library chasing the cases of non-payment, and knowing the monthly turn-over?

W: All this also is done by machine. The organisation of the work involves four items:

1. Summary Invoice Card;
2. Cash Card;
3. Matching and Sorting; and

731 Summary Card

After producing the individual invoices, the Powers-Samas installation makes a summary of each invoice on a Punched Summary Invoice Card. It gives the code number of the library, the date of the invoice, and its total amount. These Punched Summary Invoice Cards are filed in random sequence, all through the month.

732 Cash Card

At the end of the month a Cash Card is punched for every amount paid by each library. These are also filed in random sequence.

733 Matching and Sorting

These two sets of cards together with the Name and Address Cards for the libraries are put into the sorting machine. By this means the three sets of cards for each library are assembled together.

734 Balance Statement

Then, these are placed on the Tabulator and the statement forms fed into it. On each statement form, the machine prints the name and address of the library the amounts of the invoices in the sequence of their dates, and the amounts of cash received in the sequence of their dates. And by an automatic process of the machine, a balance also is struck and printed. These monthly statements are despatched in window envelopes to the libraries concerned. Nobody touches the typewriter or uses his brain for calculation!

74 Pick-Up Work and Break-Down

Ri: There are two details I should like to ask about - Pick-Up Work for the staff and maintenance of the machinery including small mending and repairing major breakdown.

741 Pick-Up Work

Ri: While the flow of work inside the organisation can be planned to be uniform, there may be occasions when the uniformity of flow is disturbed and some member of the staff is forced to be idle. Again, the orders may not arrive in proper measure; there may even be days, when no order is received. What arrangement have you made for Pick-Up Work during forced idle hours of some or all of the staff?

W: This problem of Pick-Up Work is important. At present, we are regulating it from day to day and from hour to hour. We find that there is plenty of Pick-Up Work to do. It will be sometime before our experience will become sufficient to standardise even this Pick-Up Work along the lines you have indicated for library work in your Library administration.

742 Mending and Repair

Ri: What is your experience with the mending and repair of the machinery?

W: Wherever we use machinery to gain speed of work and accuracy, and to relieve man of physical and mental strain in any measure whatever, we must take care to anticipate strain, exhaustion, and even break-down in the machines themselves and provide for meeting them promptly so that the rhythm of work is not unduly thwarted. Periodical servicing of the machinery is entrusted to their suppliers. This is a helpful and necessary preventive measure. When a break-down occurs, the suppliers are informed by telephone and they usually arrive on the spot without undue delay,
with the spare parts and the tools necessary for repair.

In this connection, my mind goes to your country. I wonder if you had a similar Card Service Entries if you would also have such facilities as we have in London. To venture into the installation of such labour-saving machinery, you must have spare parts in the locality and there should also be technicians to do the periodical servicing and the contingent repairs.

75 Further Ventures

Ri- What are your dreams for the further exploitation of the system you have built up and developed so efficiently in so short a time?

751 Regional Union Catalogue

W: The first thing I would like to mention is not a dream. It was so apparent when I saw it that I cannot call it a dream. Because we have a punched card for every item ordered by a library, we quickly accumulated a minor storage problem, and as the punched cards have no further use, they would be thrown away. We had come to the point where we were about to do so. I was just about to give orders for them to be discarded, when I reviewed again the possible uses to which the punched cards might be put. It occurred to me then that these punched cards represented the books added to the various libraries. I remembered that all these libraries were troubled with the problem of reporting the books they had added to their holdings, to the Regional Union Catalogue. At this point a use for these punched cards flashed across my mind. If I re-sorted them by their library code numbers, I could print, in the BNB serial sequence, a list of the additions to be put in the Union Catalogue of a region.

We have made a pilot list for one region for the month of April 1957. It already appears that it would be a great saving both to the libraries concerned and to the Regional Centre. For the time being the cost to us is so small and this work can be done as a pick-up work by Powers-Samas staff that we need make no charge for the service.

Another new item that we have begun to do is the printing of the sheaf-entries for the Regional Union Catalogue.

752 BNB Serial Number in Books

We are also considering the possibility of getting a BNB Number on the back of the title-page of a book. Perhaps one day this will be achieved by a complete pre-natal classification and cataloguing of your dream but at the moment we are thinking of it at a much simpler level of cooperation with the publishers.

8 PRE-NATAL CATALOGUING

Ri- In the organisation you have set up this year for the production of Union Catalogue almost at no cost, you have made real what was a vague dream described in my Heading and Canons (1955).

When I was with you a few months ago, you told me that my larger dream of Pre-Natal Classification and Cataloguing described in the same book could be made a reality. I have recorded this feeling of yours in a Memorandum on the Indian National Bibliography which I finished, on request, to the Ministry of Education of the Government of India, in April last shortly after my return to India (vide P 65 of this issue of Annals). Have you anything more to tell me on that dream of pre-natal work?

W: In Great Britain, the BNB has earned the respect of the publishing trade and I am quite certain that the majority of publishers will willingly co-operate in a scheme for pre-natal cataloguing. There are some difficulties I foresee.

For example, the changes in a book after the page proof-stage might be overlooked.

Ri- Can this not be got over by the publishers sending you the page-proof of the preliminary pages of a book?

W: Yes, it can, if publishers remember to send them, but it might be dangerous to trust the publishers' memory in this matter.

Secondly it would throw a slight burden on the staff of the BNB who would have to check up
the books received for legal deposit with those which have pre-natal treatments. For, we cannot be sure that all the publishers without exception will send us the final page proof for pre-natal treatment.

Thirdly, it would take a little time for publishers to establish the routine in their own organisations so as to prevent lapses.

However, these problems can be reduced to insignificance even though they may never be entirely eliminated.

Again, it is only fair to say that pre-natal cataloguing can only be done for the publications of the regular publishing agencies.

In spite of these difficulties, it is my opinion that pre-natal classification and cataloguing would be possible in such a large number of cases that it would be very well worthwhile.

91 Staff

R:-- What is the strength of your staff at the professional, clerical, and technician level? Please give me the figures for 1950, the first year of the BNB and for 1957. You may include yourself in the count. Give also the number of items catalogued in a year and the number of subscribers.

W:-- Here are the figures:

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>1950</th>
<th>1957</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Professional</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>2.</td>
<td>Clerical</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>3.</td>
<td>Technician</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Photo</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Powers-Samas</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

| 4. | Number of items catalogued | 10,000 | 17,000 |
|    | Number of copies sold      |        |        |
|    | Weekly lists               | 1,827  | 2,046  |
|    | Cumulations                 |        | 1,297  |
|    | Annual Volume               | 1,557  | 2,196  |

In addition there has been a steady sale of each annual volumes to new subscribers (all of which are now out-of-print) and of the Five Year Index 1950-54 (of which more than 1500 copies were sold up to the end of 1956), and about 1,000,000 (one million) printed catalogue cards were also sold in 1956.

In 1951, one professional was added to handle quarterly cumulations. In 1956, we added one more to handle the five-year cumulation. In 1957, another was added to handle the four-year cumulation of the 1951-54 classified part and the British Catalogue of Music.

Incidentally, in the early years, I personally did the work of editing and much of the checking.

I have found it necessary to withdraw from detailed duties in order to plan and implement new services.

92 Distribution of Work

R:-- Can you tell me how the work is distributed among the professional staff?

W:-- The work is distributed as follows:

Editor: Responsible for general policy, planning and administration of all services.

Assistant Editor: Responsible for seeing Weekly Lists, Cumulations, Annual Volume and the British Catalogue of Music through the press. He generally oversees final preparation of copy for the press and reads the classified section.

Descriptive Cataloguing Reviser: Responsible for checking all descriptive cataloguing.

Subject Cataloguing Reviser: Responsible for checking all classification and subject indexing.

Cataloguers (2): Responsible for drafting descriptive entries and classification.

Cataloguers (2): Available to fill in during absences, to work on cumulations, annual volume, four-year cumulation, prepare material...
for card service, revision of authority files, proof-read alphabetical section of all publications.

Assistant Cataloguer: Proof-reading alphabetical section as necessary, maintain authority files and all bibliographical research for cataloguers.

Clerical Staff: Routine filing and clerical work involved in obtaining details of publication and of authors identity e.g. dispatch of form-letters each day (One person). Typing copy from cataloguers drafts for printer and authority files (Two persons). Keeping office accounts, answering correspondence and general office work (Two persons).

Photographic Staff: Responsible for preparing copy for making master stencils for card service and fixing photo-stencils to frames (Five persons half a week). Preparing copy and pasting up pages for Four-Years Cumulation (Five persons half-a-week) (Note: This staff is excessive, but in practice owing to casual nature of staff there are rarely more than four and often only three persons in this section).

Power Samas Staff (2): Responsible for producing production control sheet for catalogue card service and all general accounting.

Card production and despatch Staff (3): Responsible for printing, sorting and despatching catalogue cards. Again the staff of this section is casual and is more often only two persons.

### 93 Time Table

R:- I find that the main rhythm of the work on the BNB is the week, as the primary publication is the Weekly List. Can you give me an idea of your weekly time-table?

W:- Yes. We do have a weekly rhythm. We go to press on Tuesdays. Copies of the BNB are also despatched to the publishers on Tuesdays. Our time-table in relation to the press-work is as follows:

<table>
<thead>
<tr>
<th>Day</th>
<th>Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Editing</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Press copy reaches press</td>
</tr>
</tbody>
</table>

### 94 Time-Lag in relation to Books Received

R:- Can you tell me how long it takes for a book to move from the Copyright Office to the stage of its appearing in the BNB? In other words, what is the time-table in relation to the books themselves?

W:- Let us denote by D the day on which a book arrives at the Copyright Office in the British Museum Library. Then the time-table may be expressed as follows:

<table>
<thead>
<tr>
<th>Day</th>
<th>Stage of Work</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>Arrival at Copyright Office</td>
</tr>
<tr>
<td>D + 1 p.m.</td>
<td>Arrival at BNB Office</td>
</tr>
<tr>
<td>D + 2</td>
<td>Catalogued &amp; classified</td>
</tr>
<tr>
<td>D + 3</td>
<td>Classification checked</td>
</tr>
<tr>
<td>D + 4</td>
<td>Entries typed for printer</td>
</tr>
<tr>
<td>D + 5</td>
<td>Final check of press copy</td>
</tr>
</tbody>
</table>

A book whose D + 4 falls on a Monday will be included in the Weekly List of the third Tuesday thereafter; while a book whose D + 4 falls on any other day of the week will be included in the Weekly List of the second Tuesday thereafter.

### 95 Books Listed in a Week

R:- What is the average number of items appearing in each issue of the Weekly List?

W:- Between 350 and 400.

### 96 Management

R:- Lastly, can you give me a brief account of the Managing Body, the chief
W:— The Council of the British National Bibliography is a private company registered under an act of Parliament as a non-profit-making company. It pays no dividends to those representatives forming the Council and pays no income tax but as a private company, it relies entirely on income of the sale of its publications. It gets no support from the government and is financially quite self-supporting. The Council was formed in 1947 by representatives of the British Museum, the Library Association, the Publishers Associations, the Booksellers Associations, the National Book League, the British Council, the Royal Society, Aslib, the National Central Library, and the UNESCO Co-operating Body for Libraries. None of these organisations is in any way liable for the finances of the British National Bibliography which in fact actually started business with no capital whatsoever. It was not a happy arrangement, and although we had succeeded in establishing the Council on a sound financial basis, I do not recommend it. The British Museum makes available to the staff of the British National Bibliography the books received by them under the copyright act and also provides most of the accommodation.

The day-to-day affairs of the Council, both those relating to professional matters and to finance are in the hands of the Editor who also acts as secretary and managing director of the Company. A Committee of Management comprised of five members of the Council meets monthly. The Council itself, consisting of fifteen members, meets annually.