AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHI' 3TON, D. C. 20523
BIBLIOGR' PHIC INPUT SHEET

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Batch #18

1. SUBJECT CLASSIFICATION
A. PRIMARY: Agriculture — AC00-0000-G302
B. SECONDARY: Education,extension,and advisory work--Latin America

2. TITLE AND SUBTITLE
Improving access to Latin American agricultural information through modern documentatio centers

3. AUTHOR(S)
Felstehausen,Herman

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1968	13p.	ARC LAT630.F324

7. REFERENCE ORGANIZATION NAME AND ADDRESS
Wis.

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*
(In Q.bul.of Int.Assn.of Agr.Librarians and Documentalists,July 1968,p.117-128)

9. ABSTRACT

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-RAB-028	

12. DESCRIPTORS
Documentation
Information systems
Latin America
Libraries

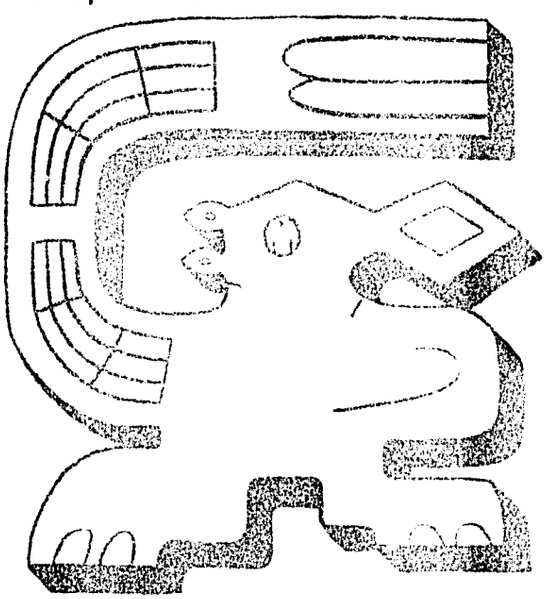
13. PROJECT NUMBER

14. CONTRACT NUMBER
Repas-3 Res.

15. TYPE OF DOCUMENT

AID 590-1 (4-74)

LTC Reprint No. 50



Improving Access to Latin American Agricultural Information through Modern Documentation Centers

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Reprinted from
Q. Bull. Int. Ass. Agric. Lib.
July 1968

IMPROVING ACCESS TO LATIN AMERICAN AGRICULTURAL INFORMATION THROUGH MODERN DOCUMENTATION CENTERS

Herman Felstehausen *(Bogotá)*

Introduction to the Problem

Each year Latin American countries produce hundreds of reports, papers and articles about agriculture and rural development. Often these publications and reports are not available to the administrators, planners, teachers and scientists for whom they were written. Most agricultural materials are produced and distributed in limited numbers. The typewriter and mimeograph machine are still the most common forms of printing. Few agricultural reports in Latin America are systematically collected and preserved. This is especially true of economic, social and planning data which are the special concern of this paper.

Mimeographed and duplicated materials are often available only in the agency or office that produced them - and sometimes not there either. At the same time, books about agriculture are scarce. For example, a report on books published in Colombia during 1965 listed 394 new books. Of these, only two were in the field of agriculture.[1] Meanwhile the Colombian Agrarian Reform Institute (INCORA), one of the country's leading agricultural agencies was producing as many as 250 new reports and studies per year.[2] Most of these documents appear in mimeographed form. Sometimes they are bound with printed covers. But many are not available to teachers and researchers.

Mimeographed reproduction is a reflection of the lack of centralized printing facilities, the high cost of equipment and paper, and the need for rapid reproduction of official reports. Costs are high, because in Latin American countries both printing equipment and quality paper are imported. At the same time specialized books and printing have little market under conditions of both low incomes and low literacy.[3]

In summary, Latin American agricultural and rural development information originates mainly in official and semi-official agencies and appears in non-book form. These two facts have important implications for libraries, information centers and all who use agricultural reports in teaching, research and planning. Steps to increase

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the availability and use of agricultural information need to include special measures to improve the access to informal materials.

Examples from Colombia illustrate the limited availability of basic agricultural information. A national agency like the Colombian Ministry of Agriculture often duplicates less than 300 copies of its materials. The Colombian Agrarian Reform Institute usually prints between 50 and 200 copies of its technical reports and rural studies. The Interamerican Agrarian Reform Center (CIRA), an international agency, produces only 80 copies of papers in its mimeographed series. A study by the Interamerican Institute of Agricultural Sciences reports that 62 of Colombia's principal agricultural agencies employ 18,400 technical and administrative personnel.[4] If one copy of each report or publication in agriculture were made available to each five technical and administrative persons in only these agencies, more than 3,600 copies of each publication would be needed.

Increasing the number of copies of publications and better distribution of those that are produced is one alternative often suggested. This alternative is unusually difficult to implement because the needed increase in numbers is large. It is equally difficult to get each of the hundreds of agricultural agencies in Latin America to cooperate.

With only a few copies produced, better use of material available would be a solution. This implies public access to agricultural information in libraries and information centers. But no Latin American country has a comprehensive library system that collects agricultural documents. The main agricultural libraries in Colombia have poor collections of materials produced within the country. The Ministry of Agriculture Library, a natural point for collection of agricultural materials in Colombia, has not cataloged a single publication from some of its sister agencies. INCORA has produced more than 1,000 technical reports in its six-year existence. As of a year ago, the Ministry of Agriculture Library had cataloged only one of these publications. INCORA's own library had only 603 of these publications. Agricultural agencies have produced many more publications than an examination of any one of the country's libraries would indicate. This is illustrated in the following table.

With hundreds of agencies and organizations in the field of agriculture (Colombia alone has more than 150), a research person or teacher must visit dozens of centers and make numerous personal calls to locate materials about a particular problem or region. As can be seen in Table 1, the best collection of an agency's publications is usually found in its own library. But even these collections are incomplete.

Many specialized libraries like the ones listed in Table 1 grew

Table 1

NUMBER OF PUBLICATIONS AVAILABLE IN A SAMPLE OF LIBRARIES OF SIX AGRICULTURAL AND ECONOMIC AGENCIES IN COLOMBIA.
(Based on examination of card catalogs)

	Agency or Organization					
Name of Library	National Bank	Agric. Credit Bank	Inter-American Agrarian Reform Center	National Coffee Growers Federation	Colombian Agrarian Reform Institute	Ministry of Agriculture
National Bank Library	49	3	0	3	2	7
Agricultural Credit Bank Library	14	121	1	11	7	6
Interamerican Agrarian Reform Center Library (a)	18	10	103	3	70	5
Colombian Agrarian Reform Institute Library	5	9	5	9	603	1
Ministry of Agriculture Library	1	4	0	0	1	6
Luis Angel Arango Library (b)	44	4	0	8	0	20
Agricultural College Library, Medellín (c)	1	10	9	2	55	16
Colombian Agricultural Institute Library, Tibaitatá (d)	4	4	No. Info.	16	No. Info.	No. Info.

(a) This library is part of the Interamerican Institute of Agricultural Sciences of the OAS and thus would not be expected to collect all Colombian material or to circulate its material especially to Colombian libraries.
(b) This library is the closest example of a 'Library of Congress' found in Colombia. It is operated by the National Bank (Banco de la República) as part of its cultural program.
(c) Numbers for this library indicate publications found by searching the stacks rather than the card catalog.
(d) This library is in the course of being reorganized. Publications from many national agencies are now being collected and cataloged.

out of the interests of a few research or administrative personnel within the sponsoring organization. The library provides a set of 'service materials' mainly for staff use. In the meantime, the number of publications as well as users continues to grow without any library having sufficient staff, space or resources to bring together a complete collection of Latin American agricultural information.

Lack of access to materials results in needless waste of expensive

research and administrative time and sometimes duplication of work. As time passes, some basic studies are permanently lost from circulation. A major agricultural agency operating in Colombia in the late 1950's and early 1960's called Servicio Técnico Agrícola Colombiano Americano produced scores of reports and publications about Colombian agriculture. Today, only a few of these materials can be found in circulation.

A special need for comprehensive information centers in the developing countries results from the growing number of universities and faculties teaching agricultural social sciences. Students and professors complain constantly that many courses are reduced to textbook theory for lack of local materials.[5]

Colombia and other Latin American countries face a serious need for better preservation and access of rural economic and social data. This is a need that existing libraries cannot be expected to meet for three important reasons:

1. Conventional libraries are not equipped to handle non-book materials which comprise most of Latin American agricultural documentation;
2. Conventional library methods are too slow and costly to allow most libraries to incorporate agricultural publications into their holdings while keeping up with new accessions;
3. Existing library methods usually require the user's presence in the library which is neither economical nor feasible for many technicians and administrators.

Meeting the Needs

To confront these problems, Latin American countries need a new kind of institution designed and equipped to deal with materials that are typically ignored by book publishers and libraries and to offer services that libraries typically do not provide.

It is the purpose of this article to suggest that agricultural information centers be established, and to present some ideas on how they might best be organized. I cannot, of course, say much about where the support for the centers would come from, or who might do the actual work, except to suggest that experience in a few countries points to the need for cooperative efforts on the part of national agencies and foreign assistance organizations.

The following points appears to be the most important in developing an information center:[6]

1. the Center should be located where research and administrative people are. In Colombia this would place the Center in Bogotá;
2. the Center should provide rapid service in collecting, cataloging and lending;

3. the Center should handle manuscripts, mimeographed papers, bulletins, folders and other publications with the same or greater speed and ease with which it handles books;
4. the Center should be in regular contact with both the information producers as well as the users. It should bring the catalog of holdings to the user rather than the user to the catalog;
5. the Center should be able to provide materials to the user without his personal visit to the Center.

It is important to remember that the basic problem in Latin America is the lack of distribution and easy access to agricultural materials. Changing from hand to machine systems of cataloging and developing better storage methods are necessary to accommodate the kind and the amount of material being produced in agriculture. Conventional library techniques require a great deal of trained manpower, are time consuming and waste space. Costs of announcing acquisitions and circulating materials are also very high.

With these limitations in mind, the author with help from others interested in information problems, has been experimenting with perforated machine cards, machine cataloging techniques and versatile storage systems.[7]

Basically, the machine system consists of placing names, titles, dates, subject classifications and other reference data on IBM cards instead of standard 3 by 5 inch library cards. Electronic machines can then sort and alphabetize the cards, print catalogs, find reference numbers, duplicate cards and do other operations that demand large amounts of clerical time in standard libraries.

The following table presents a step by step comparison of the machine system and a conventional library system.

Table 2

CONVENTIONAL LIBRARY SYSTEM AND MACHINE SYSTEM COMPARED FOR RECEIVING, CATALOGING AND STORING PUBLICATIONS

Step	Conventional Library	Machine System
1	Stamp publications with library's identification stamp.	Same procedure
2	Classify materials using Dewey Desimal System, Library of Congress System or other code. This requires skill and in new subject matter fields like 'agricultural development' requires constant invention of new categories.	Number all items consecutively as they arrive by writing number on publication. Procedure is simplified; no special skills required.

3	Type catalog cards-one each for author, title, subject, organization or other classification.	Punch author, title and other data into IBM cards - one copy only - machine does the rest
4	Paste pocket in back of publication and type pocket card for lending purposes.	This step eliminated. The number identifies the publication. Only borrower's name and publication number are needed to check out the publication.
5	Place new reference cards in catalog in proper alphabetical order by hand sorting.	This step done by machine at the rate of 500 to 1000 cards per minute.
6	Place publications on the shelf within the existing collection. To do so it is necessary to move publications to make new items fit in proper space.	No moving of existing holdings. New publications are placed in stacks or files in numerical order as they come into the Center. Growth is always at the end of the shelf or file. No space lost.*
7	Announcement of new acquisitions not done by most libraries. If done, it requires printing a list by copying information from a set of file cards kept for that purpose.	Machine prints announcements. Announcement of new holdings can be made at any time by placing machine cards into a mechanical printer.
8	Maintain general catalog at the central library-users must come to the library to consult its holdings.	Catalog sent to users. The entire list of holdings of the library can be quickly printed by machine and distributed in book form to various centers and offices for use outside the library.

* Some readers will object that this system does not allow browsing - that a person entering the stacks would not be able to examine all publications about a similar subject. This loss is not a serious one since many libraries do not allow the public into the stacks anyhow. Furthermore, the loss can be compensated by better printed catalogs. The consecutive number system saves a great deal of time in classification and makes much more efficient use of storage space, both costly items in modern libraries.

The experimental work we are doing indicates that numerous classifications of the material can be provided by information centers without difficulty. These include organizing and printing reference lists according to title, author, subject, publisher, geographic relevance of subject matter and date of publication.

An important feature of the machine system is that it makes it possible for information centers to give specialized service to individuals and organizations. A scientist or government official

can have a select list of references machine printed for his area of interest. Service aspects should be given major consideration in planning information centers since the production of research material is not of much value unless it reaches persons in administrative, planning, teaching and research positions.

Using Machines

Establishing a machine system of cataloging means adapting library references to a machine form of handling numbers and words. In general, machines do the work of printing and alphabetizing cards, printing catalogs and finding references - all tasks which are slow and costly by hand.

The system discussed here is not new or unique. Large electronic information retrieval systems are already in operation in the United States and Western Europe. The largest is the National Medical Library at Bethesda, Marvland. It processes not only reference material but also an abstract of the contents of thousands of medical journals and publications and prints a list of 14,000 new references each month.[8]

The United States Department of Defense processes extensive data on manufacturing methods and new industrial technology. The Library of Congress has a project underway to develop a computerized library. There is some use of machine records in many specialized libraries.

In Colombia there are several libraries making conversions to machine systems including the INCORA Library, the Interamerican Agrarian Reform Center Library and the National Geographic Institute Information Service. Some of the ideas for this paper are based on their experience. Yet, as far as we know, there still is not a single computerized library in operation in Latin America.

A simple machine system like the one described here can be adapted to small libraries at low cost and with a minimum of equipment and personnel needs. Once machine perforated cards are used, more elaborate indexing and retrieval methods can be included later.

In a conventional library, reference data and call numbers are typed onto 3 by 5 inch library cards. The machine system described here uses the same information except that it is punched into specific locations (fixed fields) in IBM cards. The following diagrams compare a standard library author card with the same information rearranged in three IBM cards. Additional cards could be used if desired.

An IBM card has 80 columns - each column serving for one letter or one number. Space is more restricted under the fixed field system than it is in a library card resulting in more abbreviations. Physical

Figure 1.

REFERENCE FROM A STANDARD LIBRARY CARD CATALOG

THIESENHUSEN, WILLIAM C.

A333.0983
T44ch

Chile's experiments in agrarian reform ...
Madison, University of Wisconsin Press, 1966.
Land Economics Monograph No 1.

230 p. 23 cm.
Bibliography at the end of the text.

Figure 2.

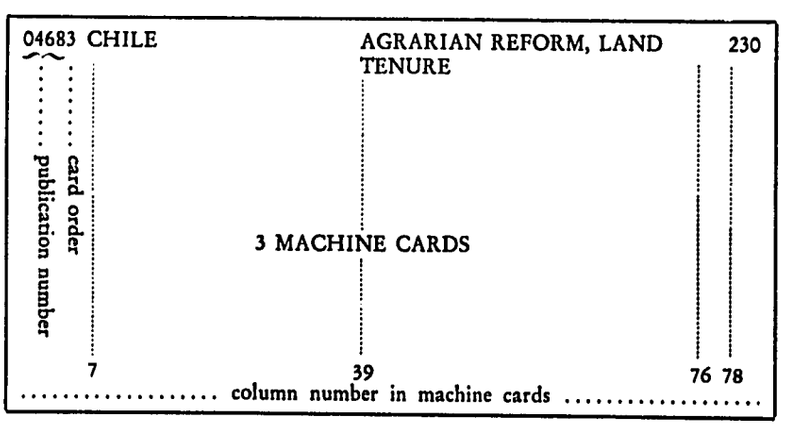
ARRANGEMENT OF REFERENCE INFORMATION USING THREE MACHINE CARDS

Card 1 AUTHOR ..... PUBLISHER AND CITY ..... DATE
Card 2 TITLE ..... (SERIES NUMBER WHEN APPLICABLE)
Card 3 PLACE NAME ..... SUBJECT HEADING ..... PAGES

This diagram shows how the reference from Figure 1 would appear when recorded in machine cards. Information can be rearranged by machine if new spacing is desired.

04681	THIESENHUSEN, WILLIAM C.	UNIV OF WISCONSIN PRESS, MADISON	00/66

04682 CHILE'S EXPERIMENTS IN AGRARIAN REFORM; LAND ECONOMICS MONOGRAPH NO 1



descriptions of publications and notes about maps and bibliographies are omitted. However, they could also be included in extra cards in cases where these notes are vital.

While some descriptive information has been omitted other data have been added. An additional subject reference was added to show the specific geographic area described by the publication. This is especially useful in development studies where research is often done in a single village or state.

The machine system described here requires access to three basic card handling machines. A computer is not required although it would add additional flexibility to the catalog if it were available. For punching the cards as the publications arrive, the Center needs a card punch machine. To sort and alphabetize the cards and print the catalog, a sorter and an accounting machine with printer are needed. A visual check can be made for errors avoiding the purchase or a card verifier. A large library would probably want to have its own machines which can be rented from IBM for about 250 dollars per month. For small collections, a time use contract or agreement with computing centers is adequate provided there is easy access to the service center.

In cases where small libraries do not wish to buy any card equipment, reference information can be first typed on slips of paper. The typewriter is set for an 80 space line using the tabulator to space the data in the same way it will appear in the card. Periodically the slips of paper are sent to a computing service center where the cards can be punched, alphabetized with other holdings, and a new catalog printed and returned to the Center.[9] In this way, all of the work of a small technical or office library can be performed by secretarial staff.

If a computer is available, it is not necessary to use fixed fields in the cards. All reference information can be punched into cards in consecutive order with an identifying mark used to tell the computer when one item ends and the next begins. Machines for sorting and printing are not needed either - the computer will do this work.

We make no attempt to fully exploit computer techniques. Many Latin American institutions do not have access to computers or funds for their use. Thus the aim of this proposal is to devise a simple, low cost, system which has obvious time saving advantages as well as benefits to the library user. Additional features can easily be adapted by each library.

Two persons should be able to handle all operations of an information center like the one described here and receive up to 500 new publications per week. This would include classifying and filing the material and preparing the catalog. In a conventional library two persons handle only about one-tenth of the same volume.

Acquisitions and Lending

One of the problems in building a comprehensive collection of agricultural materials is in obtaining new publications from the large number of agricultural agencies. Since many publications are printed in limited numbers, many items will always be comparatively rare. In order to obtain scarce materials, Center personnel and others associated with information programs need to make periodic personal visits to the main organizations, agencies and agricultural groups in the country.

Once information centers are established, the main agencies can begin to set aside copies of each publication and paper produced. If the 25 most active agricultural agencies and organizations in a country like Colombia would do this, the major part of the agricultural development materials would be obtained.

Once it became known that agricultural information centers were comprehensive and reliable sources of material, it would also become attractive for individual researchers and authors to place their unpublished materials in the centers. This would automatically get their names and publications included in the lists of new acquisitions and would provide immediate announcement of their work. In this sense it would serve as a substitute for formal publication.

For scarce or valuable publications, two copies could be obtained in order to keep one in reserve. If a single collection is maintained it would be almost impossible to permit scarce materials to circulate outside of the library since a lost publication might be impossible to replace. Thus one copy of rare materials would be used for a 'closed' collection to assure the user that the library always had the items it indicated in its publications list. The second copy could be allowed to circulate. Or for the sake of efficiency, only select items would need to be placed on the closed list and all others allowed to circulate.

To provide service to users who are not able to visit the holdings, information centers should have photo-duplicating machines or other rapid low-cost copying devices. For a small charge, a photo copy of any part of the collection could be made and mailed to the client. If the user were charged full cost, he would not need to return the publication. This practice is now being used by some large libraries in the United States and Europe. It reduces the amount of lost materials. It also simplifies lending and record keeping. The third advantage is that it gives the user his own personal copy of the article or paper to keep and use at his leisure. This in a small way also expands the publication and circulation of each item.[10]

Classification and Storage of Publications

Since agricultural information consists mainly of pamphlets,

folders, mimeographed papers, and other non-book materials, Dewey Decimal, Library of Congress or other pre-classification systems and shelf storage do not work well. Both classification and storage need to be more efficient. And changing the classification also changes the storage.

Conventional pre-classification systems in use in libraries around the world serve as one of the big bottle necks to efficient library development. The problem has plagued libraries since the earliest classifications were developed. Commonly used pre-classification systems create two special problems in library organization. One is they demand well trained personnel for developing and assigning classification numbers. The second is the effect the system has on space usage. New publications always enter *within* existing holdings meaning that as the library grows, old materials must be constantly moved to make additional room.

The consecutive ascending numbering system proposed here is a post-classification system and is already used in many specialized libraries.[11] With machine handling and sorting of reference cards the system is receiving renewed attention. Numbering publications under this system is a clerical job with no special training required. Items are located more rapidly than in searching for publications marked with complex numbers. Storage is also simplified since new publications always enter at the end of the storage space. Growth is simply a matter of additing new storage files or shelves. Trained personnel are needed only for library management and selection of subject headings. Technical advice on machine usage can be obtained on a consulting or part-time basis from computer service centers.

There are two types of storage which can be used for mimeographed papers and soft-cover report. One is the ordinary office filing cabinet with occasional dividers and guides which can be numbered to separate and locate the material. The second storage system is to place publications in boxes in bookcase shelves. A modification of this idea consists of metal boxes built into bookshelves. The boxes hinge outward exposing the tops of the publications for selection. Both systems are easy to use and keep the publications free from dust.

It is wise to put books on shelves and number them with their own set of consecutive numbers. A code in the catalog indicates book or non-book so that all references are included in one catalog for ease in use.

There is a final important point that should not be overlooked in establishing information centers using machine cards or in converting existing libraries to these systems. Once a number of libraries and centers are operating with machine catalogs, a centralized national or even international agricultural reference catalog could easily be produced. This would require that each library or information center

send a set of its cards to a central computer which would reorganize the material into one standard reference order and print a combined catalog. If all participating libraries and centers had photo-copying equipment, a user could order by mail from any center in Latin America holding the item he desired.

Certainly with the rapid growth of research and the urgent need to understand rural problems, all nations could make profitable use of better agricultural information centers. Machine systems, while requiring special planning and adaptation, provide one means of meeting the problems of scarcity, limited access, and lack of publication of agricultural information.

REFERENCES

1 *Boletín Mensual de Estadística,* Número 193, Departamento Administrativo Nacional de Estadística, Bogotá (April 1967) 91-93.

2 Vicente Flórez, *Review of INCORA publications,* report on file at Land Tenure Center, Bogotá (1966).

3 Fewer than 2,000 copies of first edition technical books are issued by publishers in Colombia. See also *Boletín Mensual de Estadística* op. cit.

4 Instituto Interamericano de Ciencias Agrícolas de la OEA, *Organización Administrativa del Sector Agropecuario de Colombia,* Five volumes, Bogotá (1966).

5 The author had first-hand experience with this problem in teaching a course on Colombian rural organizations and institutions at the National University in Bogotá.

6 These ideas are drawn partly from the experience of Fernando Monge, head of the communications section of the Centro Interamericano de Reforma Agraria, Bogotá. He is assisting INCORA and CIRA in developing publications libraries using machine cards and a computer catalog. See Fernando Monge S., 'Centro de Documentación e Información por Computador Electrónico: Una Idea para Estimular la Lectura Técnica' *CIRA Mimeografiado* No. 91, Bogotá (Agosto 1967) 26 p.

7 For a good explanation of the use of mechanical and electronic card systems, see Charles P. Bourne, *Methods of Information Handling,* New York: John Wiley & Son (1963) 241 p. The machine system discussed here is currently in use in the offices of the Land Tenure Center, Bogotá, Colombia. IBM equipment at the National University is used for preparing and printing the catalog.

8 *Time Magazine,* (September 3, 1965) 52-57.

9 One secretary, as a part of her regular work, uses this method to maintain the office library at the Land Tenure Center. Bogotá. The professional staff selects the publications for cataloging.

10 The author is aware that this practice might violate copyright laws in some countries. However, since most of the material under consideration here would not be copyrighted, the problem has not been discussed.

11 Additional details on machine classifications and catalogs can be obtained from commercial data processing companies such as International Business Machines. See for exemple, *Library Catalog Production,* Technical Publications Department, IBM, White Plains, New York (no date) 25 p.