

Computer Application for Housekeeping in a Small Medical Library

— A case at the National Cancer Center Library —

小規模図書館におけるコンピューターによる事務処理 — 国立がんセンター図書館の例 —

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要 旨

コンピューターを図書館業務に用いる場合、貸出関連業務、参考業務（文献検索）、整理関連業務等への利用が可能であるが、国内の現状では、各館の事情に応じて独自のコンピューター処理システムが開発されていくであろう。国立がんセンター図書館の概要を述べると、蔵書は約 40,000 冊、受入雑誌数 490 誌、利用対象者数は研究所員 120 名、病院職員 350 名、事務職員 110 名、図書館職員は 4 名、年間貸出数は約 20,000 冊の中小規模の研究・病院図書館である。当館はコンピューターによる省力化の効果があると考えられる貸出利用統計と雑誌目録作成の事務処理にコンピューターを利用している。初期の方法、改良した点、将来の利用について述べる。

- I. Introduction
- II. Statistics of Loan Records
- III. Listing of Journals
- IV. Discussions

I. Introduction

There are various applications of computers to library works, namely, circulation control, statistics, bibliographical search, book ordering, cataloging, budget control, journal control and others. Usually computer work is performed by the use of alpha-numeric character set, because KANJI printers are not yet popular for economic reasons. In United States most libraries are using computers for cataloging, journal control, and bibliographical search by

using on-line systems. A few on-line system are under experimentation in Japan.

The National Cancer Center in Tokyo was founded in 1962, and its library was established two years later. The outline of the library is as follows: 8,200 monographs and 20,000 bound journals, and 490 titles of current journals. There are 680 enrolled users; 150 physicians, 200 nurses, 100 technicians, 120 research workers, and 110 members of the Administration Department. The library staff consists of one director (not a librarian), 3 librarians and 1 assistant librarian.

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In 1967, the Center installed a computer system HITAC 8350-393KB (Hitachi Ltd., Tokyo). This is put to use by open-shop system. In this system, a professional program center is not set up and members of each department had to develop programs and operate the machine by themselves.

At present, our library is using the computer for two housekeeping purposes; for making annual analytical statistics of loan records and to produce various lists such as the list of journals accepted at the Library, including current subscriptions, exchanges and donations. Primary interest is the feasibility, efficiency, and effectiveness of using computer for the library work, and its cost was not our primary concern. Personnel problem is always important in a small-scale library as ours, and there was no addition of a special staff, and the computer was used by librarians without prior experience in computer work.

II. Statistics of Loan Records

A system for statistics of loan records was developed in 1969. Program language used was the Report Program Generator (RPG), which can produce a tabulated report easily, without the knowledge of any machine language. In 1973, to shorten the process of this work, a data check program was developed by a specialist of the Hitachi Ltd., the computer manufacturer, and a slight change in the system has enabled more effective use. When the system was developed in 1969, it took about 6 months for preparation by a librarian, and later some revisions were added by another librarian. Details are presented here.

Data Preparation

Charging system in the Library is a variation of the Newark system. When a book is loaned, a charging slip is filled in by the user and filed in the date-due file. When the book is returned, the charging slip is stamped with the date of return. The charging slips are kept for loan records. An abbreviation of journal title is written on top of charging slip with red pencil by a person at the charging

desk. In the case of monographs, a call number is written by the user on a fixed column of the slip, and no other writing is necessary. Data card is punched based on the charging slip. In the 1975 loan records, the number of cards punched was about 370 in a week, and it took about 4 hrs to punch and verify them.

Format of a data record and items are as follows:

Column 1-24. Abbreviated title of journals or call number of monographs (24 characters)

Abbreviations were based on "The Rules of International List of Periodical Title Work Abbreviation," prepared for the UNISIST/ICSUAB Working Group on Bibliographic Description, 1971. Monographs are classified by the National Library of Medicine Classification and the Library of Congress Classification system. In this item alphabets of classification numbers are used, i.e., WA, WB. One of the exceptions is QZ and QZ200- and the other is W1, W2, W3, W4 and W5-.

Column 25. JM Mark (1 character)

J is a symbol for journals and M for monographs.

Column 26-27. Year of publication (2 characters). Last 2 digits of the publication year.

Column 28-29. Number of loan (2 characters)

Number of journal and monographs loaned.

Column 30. Number of journals loaned for overnight or letter 1 and 2 for language distinction of monographs loaned (1 character)

Column 31-32. Year of loan (2 characters)

Last 2 digits of calendar year when the materials were loaned.

Column 33-34. Month of loan (2 characters)

Month when materials were loaned, designated by numbers beginning with 01.

Column 35-36. Classification of users (2 characters)

There are 12 classes, from 01 to 12.

Data Conversion

Punched data cards are transferred to a transaction magnetic tape file by a checking data program (COBOL) once a month. After printing out by a line printer wrong data are corrected and repunched. The transaction file is

sorted by alphabetical abbreviated title. When transaction file is merged, from January to December, annual data master tape is generated. Format of tape is the same as card format. After the statistical work, data are stored in a 2,400 feet magnetic tape in size of 20 r/b. This tape is enough to store records for 5 years. Abbreviated title master tape for checking program is generated from master tape of list of journals mentioned later. Items in the abbreviated title, publication year of initially acquired

volume, final year when applicable, symbol for receiving state, and symbols for purchase, exchange, and donation.

Job flow

Data cards are punched for these items, and transferred to two magnetic tapes, one for journal data file and the other monograph data file. These two tapes are master files, and all lists of statistics are printed out from these two tapes. The job flow chart is shown in Fig. 1.

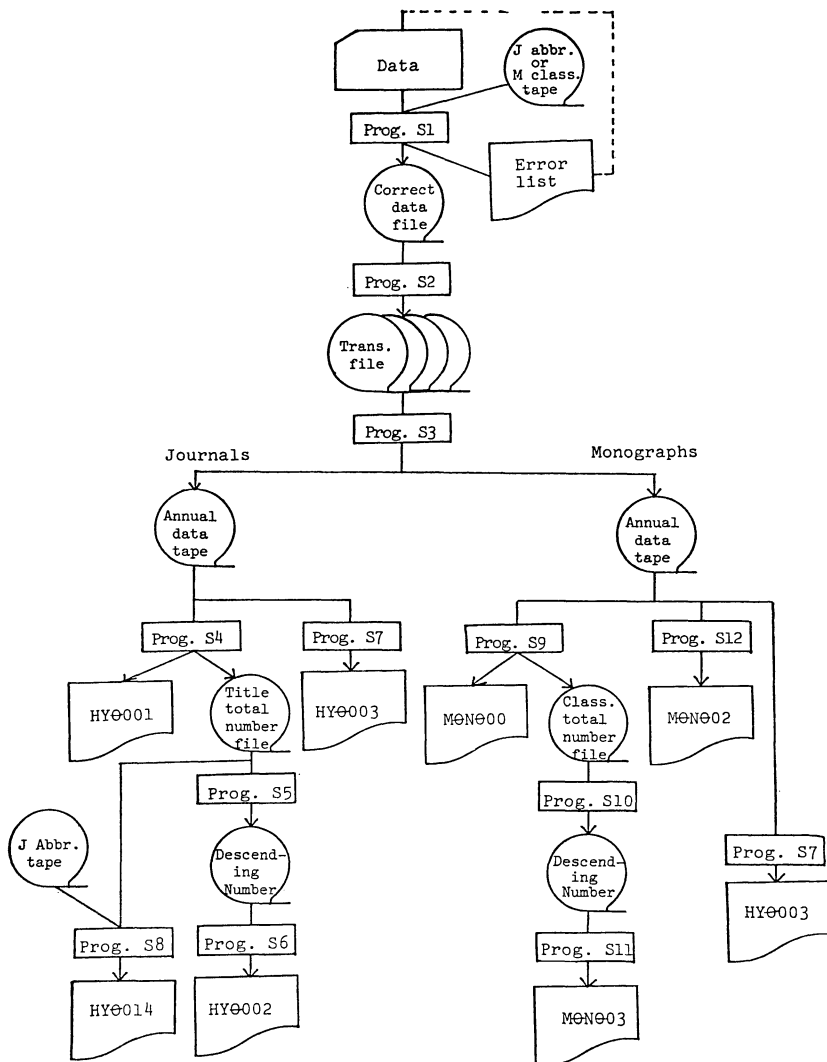


Fig. 1. Job flow chart for statistics of loan records

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Computer system

HITAC 8350-393KB system installed at the National Cancer Center consists of a card reader, a line printer, 2 magnetic disk units with 4 spindles, 4 magnetic tape units, a paper tape reader punch, and a mark sheet reader. There are 2 card punchers and 1 card verifier. The computer is operated in batch mode by many users in different departments. The machine is located in a room and there is no terminal. The system is not designed for on-line work.

Programs

Program names, program language, and in-

structions of lists are as follows:

S1 - 'RUN02': Generation of transaction tapes of loan records by data check program (COBOL).

S2 - 'SOR01': Sorting of the above transaction tape, by alphabetical abbreviated title or classification code of monographs in descending order of the year of publication.

S3 - 'MERGE': Merge with the above-mentioned monthly transaction tape. Annual data tapes for journals and monographs are generated under program S1 to S3.

S4 - 'HYO001' (Fig. 2): Printing out of list

USE OF JOURNALS AT THE NATIONAL CANCER CENTER LIBRARY													
FROM JANUARY 1975 TO DECEMBER 1975 (HYO001)													
TITLE & YEAR	SHOKUIN	KENKYUJO MUKEN	JUNSHOKU	SHOKUIN	ISHI KENSHU	JOSHU	BYOINGISHI SHOKUIN	KENSHU	KANGOFU SHOKUIN	KENSHU	UNEIBU	TAISHAKU	TOTAL
ACTA ANAT													
1973				1									1
1972	1												1
1969													1
1967				1								1	1
ONIGHT	(1)	()	()	(2)	()	()	()	()	()	()	()	()	1
TOTAL	1			2								1	4
ACTA BIOTHEOR													
1963	1												1
ONIGHT	(1)	()	()	()	()	()	()	()	()	()	()	()	1
TOTAL	1												1
ACTA CHEM SCAND													
1973				1									1
1970	1	1			1								3
1966		3											3
1964	1												1
1951												1	1
1947	1												1
ONIGHT	(1)	()	()	()	()	()	()	()	()	()	()	()	1
TOTAL	3	4		1	1							1	10
ZENTRALBL GYNAKOL													
1974				2									2
1968				1									1
ONIGHT	()	()	()	(3)	()	()	()	()	()	()	()	()	1
TOTAL				3									3
ZH OBSHCH KHIM													
1964												1	1
ONIGHT	()	()	()	()	()	()	()	()	()	()	()	(1)	1
TOTAL												1	1
SOKEI	4542	2727	248	5672	1774	41	211	70	216	20	105	824	16450
ONIGHT KEI	(531)	(179)	(24)	(508)	(70)	(6)	(10)	(1)	(2)	(2)	()	(1)	(1334)

// END

Fig. 2. Printing out of list HY0001: Basic statistics of loan records for journals

HYO001, basic statistics of loan records for journals form annual data master tape. List HYO001 is arranged first alphabetically abbreviated titles, in descending order of the publication, and classification of users with number for overnight loan. Tape for abbreviated journal titles and total number

of loan record is generated simultaneously (RPG).

S5 - 'SORT02': Sorting of the tape of abbreviated journal title and total number of loan records which was generated by program S4, in descending order of total number of loan records.

USE OF JOURNALS AT THE NATIONAL CANCER CENTER LIBRARY

FROM JANUARY 1975 TO DECEMBER 1975 (HYO002)

JUN-I	SHIMEI	RIYOSU
1	CANCER	672
2	CANCER RES	522
3	NATURE	486
4	J BIOL CHEM	429
5	PROC NATL ACAD SCI U S A	381
6	N ENG J MED	348
7	LANCET	326
8	BIOCHIM BIOPHYS ACTA	318
9	J NATL CANCER INST	308
10	J MOL BIOL	246
11	BIOCHEM BIOPHYS RES COMM	239
12	GAN RINSHO	235
13	J AM MED ASSOC	225
14	GASTROENTEROL	219
15	IGAKU AYUMI	211
16	SCI	208
17	BIOCHEM	193
18	ANN SURG	170
19	SURG GYNECOL OBSTET	167
20	J IMMUNOL	159
21	RADIOL	154
22	J EXP MED	145
23	I CHO	134
24	BR MED J	131
25	N	
26		

Fig. 3. Printing out of list HYO002: Abbreviated titles arranged in descending order of total number of loan records for journals

S6 - 'HYO002' (Fig. 3): Printing of list HYO002, arranged by abbreviated titles by descending order of total number of loan records for journals from the tape sorted by program S5 (RPG).

S7 - 'HYO003' (Fig. 4): Printing out of list HYO003 arranged by the descending order of the year of publication and classification of users data master tape. This is used both for journals and for monographs (RPG).

S8 - 'HYO014' (Fig. 5): Printing out of list HYO014 arranged by alphabetical titles of loan records for journals. List is printed by matching abbreviated journal titles and total number of loan record tape with abbreviated journal title master tape (RPG).

S9 - 'MONO00' (Fig. 6): Printing out of list MONO00, basic statistics of loan records for monographs from annual data master tape, by classification codes of monographs, in descending order of the year of publication, classification of users, and classification of languages. A tape for classification of monographs and total number of

loan records is generated simultaneously (RPG).

S10 - 'SORT02': Sorting of tape for classification of monographs and total number of loan records by descending order of the total number of loan records.

S11 - 'MONO03': Printing out of list MONO03, arranged by classification of monograph and descending order of the total number of loan record for monographs from the tape produced by program S10 (RPG).

S12 - 'MONO02': Printing out of list MONO02, arranged alphabetically by classification of monographs, classification of users and languages (RPG).

Cost-Personnel and time

Development of statistics system in 1969 took about 6 months by a librarian with support of a specialist. The time for punching cards took about 4 hrs a week. Operation time to generate monthly transaction data tape and merge them takes 1 hr a month. Operation to generate tapes, and print lists takes about 2 hrs for annual statistics. It takes about 200 hrs to

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FROM JANUARY 1975 TO DECEMBER 1975 (HYO003)

YEAR	KENKYUJO	ISHI	GISHI	KANGOFU	UNEIBU	TAISHAKU	TOTAL
1975	2116	1799	99	73	42	14	4143
1974	1458	1680	39	85	30	47	3339
1973	609	694	26	24	8	51	1412
1972	537	542	23	10	1	38	1141
1971	381	406	16	22	6	49	880
1970	344	322	15	7	8	35	731
1969	297	274	9	2	2	36	620
1968	293	237	14	2	2	29	577
1967	218	202	5	8	4	35	472
1966	184	180	5	1		39	409
1965	171	139	3	1		44	358
1964	127	114	3			39	283
1963	113	109	4	1		31	258
1962	113	134	2			30	279
1961	69	82	1			24	176
1960	63	73	1			8	145
1959	49	48	3		1	19	120
1958	52	59	1			21	133
1957	40	46	3			24	113
1956	31	44	2			17	94
1955	38	34	2			20	94
1954	33	27	3			21	84
1953	30	22	1			17	70
1952	27	27				13	67
1951	22	27			1	19	69
1950	13	28				15	56
1949	15	18				14	45
1948	16	32				10	58
1947	11	11				8	30
1946	4	7				10	21
1945	6	8				5	19
1944	5	6				9	20
1943	9	8				5	22
1942	3	4				2	9
1941	2	5				4	11
1940	1	9				2	12
1939	5	2					7
1938	3	3				5	11
1937		2				1	3
1936	4	4				3	11
1935		5				1	6
1934	2	1				4	7
1933	1	5					6
1932	1	4				1	6
1931	3	9				1	13
1930		2					2
1928						1	1
1927						1	1
1926			1				1
1925		2					2
1921		1					1
1920						1	1
1917						1	1
SUM	7517	7487	281	236	105	824	16450

Fig. 4. Printing out list HY0003: Descending order of the year of publication and classification of users for journals

punch cards, and 14 hrs to generate tapes, sort tapes, and total time for printings was 244 hrs/year.

III. Listing of Journals

During 1962 through to 1969, 'List of Periodicals accepted at the National Cancer Center Library' was prepared manually four times.

At the time of preparation, most of the items were just transcribed, additions and changes being only 10% of the previous edition. Listing of journal titles is a suitable work for computer use, because correct data once prepared are completely reliable, and can be used repeatedly. In 1970, 1st edition by computer-printed list was published, and this was revised twice. An outline of the revision was as follows:

USE OF JOURNALS AT THE NATIONAL CANCER CENTER LIBRARY

FROM JANUARY 1975 TO DECEMBER 1975 (HYO014)

NO.	SHIMEI	RIYOSU	SHOZO	UKEIRE
1	ACTA NEUROVEG	0	(1961-1973)	S
2	ACTA PAEDIATR BELG	0	(1962-1965)	S
3	ACTA PAEDIATR SCAND	0	(1962-1973)	S
4	ACTA PSYCHIATR SCAND	0	(1962-1965)	S
5	ANAESTH	0	(1952-1970)	S
6	ANTIBIOT	0	(1972-)	E
7	APPL SPECTROSC	0	(1963-1963)	S
8	ARCH KREISLAUFFORSCH	0	(1962-1973)	S
9	ARCH ORTHOP UNFALLCHIR	0	(1963-1965)	S
10	ARCH PEDIATR	0	(1962-1962)	S
11	BER GESAMTE GYNAKOL	0	(1962-1968)	S
12	BIOL BULL	0	(1962-1973)	S
	BIUL		(1972-)	

Fig. 5. Printing out of HYO014: Alphabetical titles
of no loan records for journals

1st edition, 1970 The purpose was to change from manual system to computer system to produce alphabetical listing of journal titles. The items were the same as in manual listing; (1) symbol for reference journals, (2) title, (3) place and country of publication, (4) library holdings (initially acquired vol. no. and year, and final vol. no. and year, when applicable), (5) missing number, and (6) symbol for receiving state (continuation, discontinued, title change, and subscription stopped). The programming language was Report Program Generator (RPG). The system was developed by a librarian in 1 month.

2nd edition, 1974 The purpose was to add the bibliographic items, based on the Chemical Abstracts 'ACCESS 1969'.

3rd edition, 1975 The purpose was to be able to expand for other housekeeping applications. Items of record format were added and changed, and program language was changed from RPG to COBOL. Details of the 3rd edition are presented.

Data preparation

First manuscript for the 3rd edition was prepared from list of journals of the 2nd edition

to add title code no., subject headings, classification of receipts, vendor's name and abbreviated titles. It took about 10 days. Next, data cards were punched in 9 format as shown in Table 1. The number of punched cards were 3,773 and it took about 14 days.

The items and instructions are as follows:
Title code no. (6 characters)

One initial letter of a journal title and 5 numerals.

Title of journals (144 characters)

Main title in full. Section and part designation is added if necessary.

Abbreviation of titles (24 characters)

This is necessary to make abbreviation master tape file for statistics of loan records.

Place of publication (15 characters)

One place of publishers agents is singled out.

Country of publication (15 characters)

Country of publication. This is necessary to produce country lists.

Holdings (32 characters)

Initially acquired vol. no. (4 char.) and year

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USE OF MONOGRAPHS AT THE NATIONAL CANCER CENTER LIBRARY

FROM JANUARY 1975 TO DECEMBER 1975 (NO.00)

	BUNRUI & YEAR	SHOKUIN		KENKYUJO MUKEN		JUN:SHOKU		SHOKUIN		ISHI KENSUJI		JOSHU		RYOINGISHI SHOKUIN		KANGOFU KENSUJI		UNEIRU		TAISHAKU		TOTAL		SOKEI			
		YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA	YO	WA		
Q	1956						1																1	1			
	1955						1																1	1			
	1953						2																2	2			
	TOTAL						4																4	4			
QA	1973																										
	1971											1		1				1				1		1	2		
	1970																						2		2		
	1969		1		1							2		1				1				1		5	5		
	1968																						1		1		
	1967																						2		2		
	1966																						2		2		
	1965		1												1			1				1		2	3		
	1963																	1	1			1		1	1		
	1962																	1	1			1		2	2		
	1961																						2		2		
	1960														1								1		1		
	1959											1											1		1		
	1958		1									1											4		4		
	1955		3																1				6		6		
	1951																						1		1		
	TOTAL		6		1				12			5		4		2		4	2			4	32	36			
QC	1968				1		1																2	2			
	1967		1																				1	1			
	1963											1											1		1		
	1962				2																			2	2		
	1958													1										2	2		
	1957																							1	1		
	TOTAL		1		3				2			1	1									2	6	8			
WS-	1974		1																				1	1			
	1972																						5	5			
	1970																						1	1			
	1965																1						1	1			
	1963																1						2	2			
	1961				1				3								1						5	5			
	1960																						1	1			
	1959																	1					1	1			
	1956																						1	1			
	TOTAL		1		1				4								4	1	1		6		1	17	18		
Zon2-	1970																						1	1			
	1969																						1	1			
	1968																						1	1			
	TOTAL																						2	3			
YD-WA KEI	423	264	125	139	13	71	317	372	145	244	1	38	21	83	4	72	15	522	81	48	36	103	58	7	1279	1953	3232
G.TOTAL	687	264	264	264	84	649	419	39	104	76	537	129	65	3232	3232												
%																											

// END

Fig. 6. Printing out list MONO00: Basic statistics of loan records for monographs

(4 char.), final vol. no. (4 char.) and year (4 char.), when applicable. Missing number (16 char.) is recorded in brackets.

Symbol for receiving state (1 character)

There are four kinds; + for continuation, / for discontinued publication, . for title change, and # for receipt discontinued.

PED marks (1 character)

P stands for purchase, E for exchange,

and D for donation.

Vendor (3 characters)

There are 4 kinds of vendor's marks and 1 mark for membership status of associations and academic societies.

Symbol for reference journals (1 character)

R indicates a reference journal.

Subject headings (160 characters)

They are based on 'List of Journals In-

Table 1. Format of Data Punch Card of List of Journals

Card No.	Column	Field Designation
Card 1	1 — 6	Title code No.
	7 — 8	Card No. (01)
	9 — 80	Title code
Card 2	1 — 6	Title code No.
	7 — 8	Card No. (02)
	9 — 80	Title code
Card 3	1 — 6	Title code No.
	7 — 8	Card No. (11)
	9 — 32	Abbreviated title
	33 — 40	Spaces
	41 — 55	Place of publication
	56 — 70	Country of publication
	71 — 80	Spaces
Card 4	1 — 6	Title code No.
	7 — 8	Card No. (21)
	9 — 40	Holdings
	9 — 12	Initially acquired vol. No.
	13 — 16	Initially acquired vol. year
	17 — 20	Final vol. No., if any
	21 — 24	Final vol. year, if any
	25 — 40	Missing vol. No.
	41	Symbol for receiving state
	42	PED mark
	43 — 45	Symbol for vendor
	46	Symbol for reference journal
	47 — 80	Spaces code
Card 5	1 — 6	Title code No.
	7 — 8	Card No. (31)
	9 — 48	Subject heading 1
	49 — 55	Spaces
	56	Classification of users
	57 — 80	Spaces code
Card 6-8	1 — 6	Title code No.
	7 — 8	Card No. (32, 33 and 34)
	9 — 48	Subject headings 2, 3 and 4
	49 — 80	Spaces
Card 9-12	1 — 6	Title code No.
	7 — 8	Card No. (41, 42, 43 and 44)
	9 — 80	Bibliographic history

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dexed in Index Medicus', U. S. National Library of Medicine, 1974.

One subject is expressed in 40 characters, and 4 subject headings are allowed for 1 journal title.

Classification of journals by use pattern (1 character)

There are four classes; B for journals mainly read by members of the Hospital, G for those by members of Hospital and Research Institute, K for those by members of Research Institute, and U for those by members of Administration Department.

Bibliographic history (288 characters)

These are descriptions of the following character:

"Absorbed by", "changed back to", "continues in part", "divided into", "formerly", "marged with", "published as", "section designation varies", "series title varies", "superseded by" and "supersedes."

Data Conversion

The data base is then transferred from punched cards to magnetic tapes. For additions and change in future two master tapes had to be compiled; one as a master file storage and the

Table 2. Tape Format of List of Journals Master File

Columns	Characters	Field designation
1 — 6	6	Title code No.
7 — 150	144	Title
151 — 165	15	Place of publication
166 — 180	15	Country of publication
181 — 184	4	Initially acquired vol. No.
185 — 188	4	Initially acquired vol. year
189 — 192	4	Final vol. No.
193 — 196	4	Final vol. year
197 — 212	16	Missing number
213	1	Symbol for receiving state
214	1	PED mark
215 — 217	3	Symbol for vendor
218	1	Symbol for reference journal
219 — 258	40	Subject heading 1
259 — 298	40	Subject heading 2
299 — 338	40	Subject heading 3
339 — 378	40	Subject heading 4
379	1	Classification of users
380 — 667	288	Bibliographic history
668 — 691	24	Abbreviated title
692 — 700	9	Blank

other for current use. Punched data cards are also kept for future use. One record for a journal has 200 characters, and prepared in a fixed format. The format of record is shown in Table 2.

Job Flow

This tape file is a master file, and lists of

journals are produced based on the master file. The job flow chart is shown in Fig. 7.

Computer System

Same as that for the statistics of loan records.

Programs

Programs were compiled by COBOL. Program names and instructions of list are as follows:

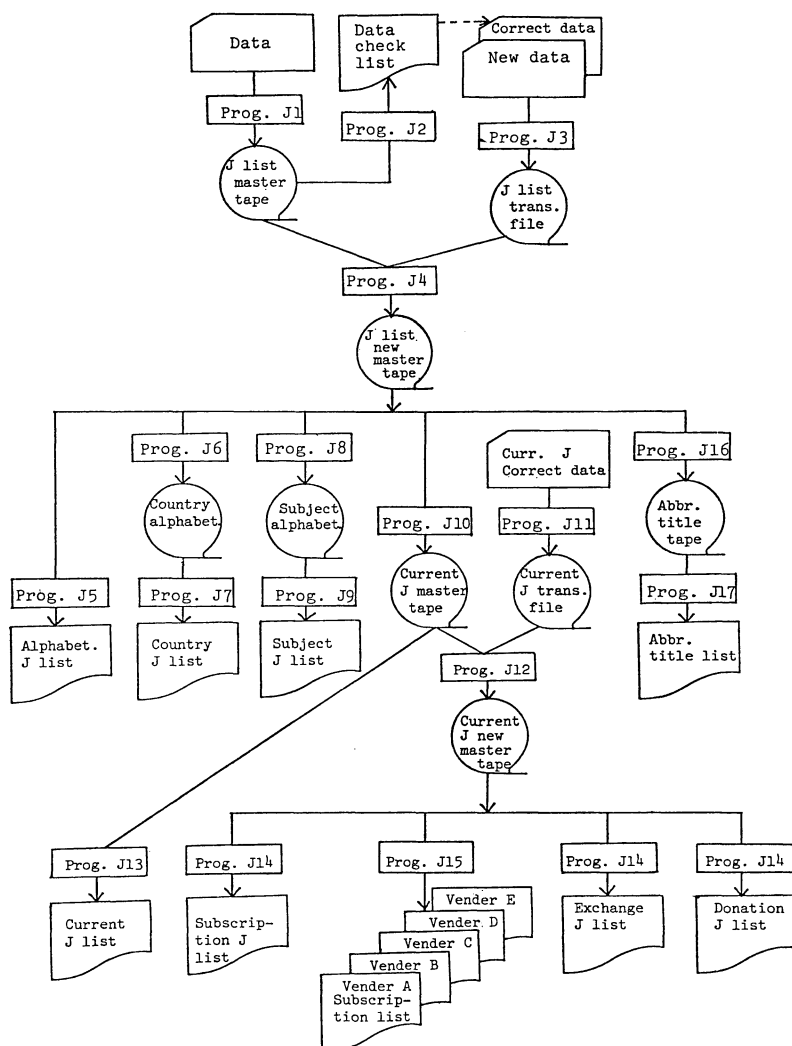


Fig. 7. Job flow chart for listing of journals

Program designation.

J1 - 'JLTAPE': Generation of master tape for listing of journal titles.

J2 - 'DCHECK': Printing out of data check list.

J3 - 'TRTAPE': Generation of transaction tape for master tape.

J4 - 'NMTAPE': Generation of new master tape for listing of journal titles.

J5 - 'JLIST' (Fig. 8): Printing out of manuscript for alphabetical list of journals accepted.

J6 - 'SRTCTY': Sorting of master tape for alphabetical list of country name, reference journal title, and journal titles.

J7 - 'CTYLST': Printing out of the alphabetical list of country name, reference journals, and journal titles.

J8 - 'SRTSUB': Sorting of master tape by alphabetical list of subject headings, reference journal titles, and journal titles.

J9 - 'SUBLST' (Fig. 9): Printing out of alphabetical list of subject headings, reference

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A00200	(R) ABSTRACTS OF JAPANESE MEDICINE 2 (1962) /	LONDON	ENGLAND
A00400	(R) ABSTRACTS OF WORLD MEDICINE 31 (1962) - 45 (1971)#	LONDON	ENGLAND
A00500	ACTA ANATOMICA 48 (1962) - 86 (1973)#	BASEL	SWITZERLAND
A00600	ACTA BIOTHEORETICA 16 (1962) - 17 (1967)#	LEIDEN	NETHERLANDS
A00700	ACTA CHEMICA SCANDINAVICA 1 (1947) +	COPENHAGEN	DENMARK
A00800	ACTA CHIRURGICA SCANDINAVICA 123 (1962) +	STOCKHOLM	SWEDEN
A00900	ACTA CRYSTALLOGRAPHICA 19 (1963) - 23 (1967). DIVIDED INTO ACTA CRYSTALLOGRAPHICA, SECTION A AND SECTION B	COPENHAGEN	DENMARK
A01000	ACTA CRYSTALLOGRAPHICA, SECTION A: CRYSTAL PHYSICS, DIFFRACTION, THEORETICAL AND GENERAL CRYSTALLOGRAPHY 24 (1968) - 29 (1973)# CONTINUES IN PART ACTA CRYSTALLOGRAPHICA	COPENHAGEN	DENMARK
A01100	ACTA CRYSTALLOGRAPHICA, SECTION B: STRUCTURAL CRYSTALLOGRAPHY AND CRYSTAL CHEMISTRY 24 (1968) - 29 (1973)# CONTINUES IN PART ACTA CRYSTALLOGRAPHICA	COPENHAGEN	DENMARK
A01200	ACTA CYTOLOGICA 1 (1957) +	BALTIMORE	U.S.A.
A01300	ACTA ENDOCRINOLOGICA 1 (1948) +	COPENHAGEN	DENMARK
A01400	ACTA HAEMATOLOGICA		



Fig. 8. Alphabetical title list of journals

journal titles, and journal titles.

J10 - 'CURTP': Generation of current journal tape.

J11 - 'TCTAPE': Generation of current journal transaction file for changing titles subscribed.

J12 - 'NCTAPE': Generation of current journal tape for changes in subscriptions.

J13 - 'CURLST': Printing out of alphabetical list of current journals.

J14 - 'PEDLST': Printing out of lists of sub-

scription journals by key item P, exchange journals by key item E, and donation journals by key item D.

J15 - 'VENDLT': Printing out of list subscription for each vendor, by key item of vendor's symbol.

Cos-Personnel and time

It took about 2 months to develop the 3rd edition of the listing of journal system, by a librarian with the support of a specialist. Preparation for the manuscript list for punching

ANATOMY

(R) EXCERPTA MEDICA, SECTION 1: ANATOMY, ANTHROPOLOGY, EMBRYOLOGY AND HISTOLOGY

ACTA ANATOMICA

ACTA CYTOLOGICA

ANATOMICAL RECORD

DENSHI KEMBIKYO

JOURNAL OF ANATOMY

JOURNAL OF CELL SCIENCE

JOURNAL OF CELLULAR AND COMPARATIVE PHYSIOLOGY

JOURNAL OF ELECTRON MICROSCOPY

JOURNAL OF MORPHOLOGY

JOURNAL OF ULTRASTRUCTURE RESEARCH

NIPPON RINSHU DENSHIKEMBIKYO GAKKAISHI

ANESTHESIOLOGY

ANAESTHESIST

ANESTHESIOLOGY

BRITISH JOURNAL OF ANAESTHESIA

MASUI

BIOCHEMISTRY

(R) INTERNATIONAL ABSTRACTS OF BIOLOGICAL SCIENCES. BIOCHEMICAL SECTION

(R) NUCLEIC ACID MONTHLY

(R) NUCLEIC ACIDS

ANALYTICAL BIOCHEMISTRY

ARCHIVES OF BIOCHEMISTRY

ARCHIVES OF BIOCHEMISTRY AND BIOPHYSICS

BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS

BIOCHEMICAL JOURNAL

BIOCHEMICAL SOCIETY TRANSACTIONS

BIOCHEMISCHE ZEITSCHRIFT

BIOCHEMISTRY



Fig. 9. Subject list of journals

took 70 hrs. Operation time for the machine was about 10 hrs, totalling to about 120 hrs. Programming system for this year took 120 hrs, but 10 hrs will be sufficient for the next edition.

IV. Discussions

There are many points to be improved on

the statistical list of loan records, and especially the lists of number of records have to be arranged more effectively and percentage of use should be calculated. During the past 7 years, abbreviations of journal titles was changed 3 times, which made it impossible to make cumulated statistics for many years. A conversion program will be necessary to

prepare consolidated list of statistics for journal titles. The statistics of loan records is an important tool of references for library holding by correlation between the user behavior and library funds. The list HYO002 (Fig. 3) presents the core journals and the list HYO003 (Fig. 4) presents the period of useful back numbers. These details will be important when we assign the location of back numbers. If a punching machine could be installed in the library, book cards can be changed to punched cards, and this will add to efficiency for both users and librarians. For example, it will be able to add circulation control. There are also many points to be improved on the listings of journals. The punched card data base has been designed to have sufficient space for future use. For example, if an item on price could be added, it will become possible to analyze the financial status of subscriptions to journal. For the purpose to produce manuscript for photoduplication of list of journals, the computer listing is very useful.

The objective of automation in a small library is to facilitate processing by a small staff and to increase efficiency. The system design will differ according to the relation between the library and the computer center of parent organization. In our library, there is no terminal, and under this condition two systems of statistics of loan records and listing of journals were considered efficient. Both systems will be used annually or a few times a year. To use these systems there was no substantial change in the usual library work. Computer application in this level is possible by a librarian with the recommendation of system analysts. Possibilities for some other uses of the computer are reference works, cataloging, and serials control. Medline service will be available at the end of 1976, if we could get a terminal. Cataloging of monographs is impossible at present, because KANJI printer is not installed, and we could not get on-line cataloging service in Japan. Serials control system (not on-line) is not effective, because the number of current

journals is not big enough to computerize in our library.

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- 1) Aagaard, James S. "An interactive computer-based circulation system: Design and development," *Journal of library automation*, vol. 5, 1972, p. 3-11.
- 2) Grosch, Andrey N. "The Minnesota Union List of Serials," *Journal of library automation*, vol. 6, 1973, p. 167-181.
- 3) Hilbert, Eloise F. "Library mechanization at Auburn Community College," *Journal of library automation*, vol. 3, 1970, p. 12-23.
- 4) Jacob, Mary Ellen L. "Standardized costs for automated library systems," *Journal of library automation*, vol. 3, 1970, p. 207-217.
- 5) Roth, Dona L. "Scientific serial lists," *Journal of library automation*, vol. 5, 1972, p. 51-57.
- 6) Scott, Jack W. "An integrated computer based technical processing system in a small college library," *Journal of library automation*, vol. 1, 1968, p. 149-158.
- 7) Takahashi, Nobuo. "Denshi keisanki niyoru zasshi shozomokuroku (production of journal list by computer)," *Igaku toshokan (Medical libraries)*, vol. 19, 1972, p. 113-118 (in Japanese)
- 8) Takahashi, Nobuo. "Computer to igakuzasshi sogo mokuroku (Computer application to union serial list)," *Igaku toshokan (Medical libraries)*, vol. 19, 1972, p. 107-111 (in Japanese)
- 9) Veneziano, Velma. "An interactive computer-based circulation system for Northwestern University: The library puts it to work," *Journal of library automation*, vol. 5, 1972, p. 101-117.
- 10) Urata, Takeo and Aoki, Takao. "Toshokan gyomu no kikaika ni tsuite; Todai Igaku Toshokan no zasshi ukeire ni kanshite (Computerization of library work; journal control in the Medical Library, University of Tokyo," *Gakujutsu geppo (Japanese scientific monthly)*, vol. 23, no. 7, 1970, p. 419-432 (in Japanese)