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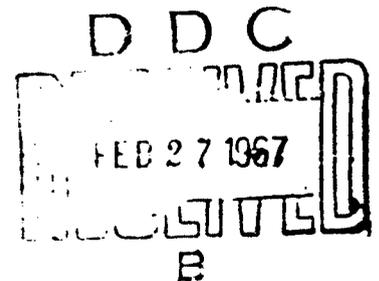
MISCELLANEOUS PUBLICATION 21

SIMULTANEOUS PRODUCTION  
OF CATALOG CARDS AND COMPUTER INPUT

AD 647232

Robert W. Butler  
Paula Z. Schofield

FEBRUARY 1967



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Fort Detrick  
Frederick, Maryland

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SIMULTANEOUS PRODUCTION OF CATALOG CARDS  
AND COMPUTER INPUT

Robert W. Butler

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Technical Information Division  
AEROBIOLOGY AND EVALUATION LABORATORY

ABSTRACT

A cataloging system is described that is based on simultaneous production of computer input and 3 by 5 cards for a manual reference file, using a Friden Flexowriter with an auxiliary punch and auxiliary reader. From 3 to 60 cards per document are produced that describe the document, including accession number, corporate author, title, date of publication, number of pages, security classification, personal author, series number, contract number, project number, and descriptors or subject headings.

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## I. INTRODUCTION

The Technical Library of Fort Detrick consists of two units, the open literature portion, which handles published books, journals, and other materials for release to the scientific community, and the Documents Section, which handles scientific and technical reports that are for the most part restricted to those with a need-to-know. The Documents Section, with which we are here concerned, contains about 45,000 reports, at least one-half of which are security-classified. These reports are filed in the order of accession numbers assigned sequentially as the reports are received. A manual reference (catalog) file of 3 by 5 cards is available for user reference. These cards contain a description of the document, including the accession number, corporate author\* or source, title, date of publication, number of pages, security classification, personal author, series number, contract number, project numbers, and descriptors.\*\* This description of a single report is called a unit record. Some recent unit records include abstracts. Table 1 is a complete list of items included in the unit record. Catalog cards for each report are filed under accession number, corporate author, personal author, title, series, contract number, project or grant number, and individual descriptors. The comparatively few abstracts produced so far are filed only in the corporate author file. From 3 to 60 catalog cards may be filed for each report, depending largely on the number of descriptors assigned.

---

\* The corporate author is the institution or corporate body responsible for preparing the report.

\*\* Descriptors are terms assigned to a report to describe its contents. Subject headings perform the same function.

TABLE 1. LIST OF UNIT RECORD ITEMS

Codes	Unit Record Item	Number of Characters
01	Classification of unit record	1
02	Accession number	5
03	First corporate author	70
04	Title	240
05	Title classification	1
06	Short title	10
07	Report type and dates	40
08	Date of report	10
09	Number of pages and references	10
10	Copy number	20
11	Report classification	1
12	Control number	20
13	Security group	1
14	Release limitations	2
15	Second corporate author	70
16 / 25	Personal authors	20 each 200 total
26	Originating agency series	30
27	Originating agency series	30
28	Contract or grant number	20
29	Contract or grant number	20
30	Project number	20
31	Project number	20
32	Task and work unit numbers	10
33	Task and work unit numbers	10
34	Other series	30
35	Other series	30
36	First corporate author code	10
37	Second corporate author code	10
38	Supplementary note classification	1
39	Descriptor classification	1
40	Abstract classification	1
41	NOFORN	4
42	Supplementary note	100
43 / 90	Descriptors	10 each 48 possible
91	Abstract	980

## II. THE NEW PROGRAM

A new program first used in June, 1966, results in both 3 by 5 catalog cards and punched paper tape for input to a computer. According to present plans, when the computer programming is complete the computer will produce lists of unit records under accession number, corporate author, personal author, contract, series, and descriptors. These lists will form a book catalog; that is, they will consist of sheets of paper bound as a book. The accession number book catalog will contain for each report a complete unit record (Fig. 1) containing all the information describing the report. The book catalogs for corporate author, personal author, contracts, and series will contain abbreviated records (Fig. 2); that is, they will contain only selected parts of the complete unit record, such as the accession number, date, corporate author, and personal author. The book catalog for descriptors may contain only accession numbers.

Because the computer prints only in capital letters, the print-out will look much like Figures 1 and 2. The current computer can print only the following characters:\*

0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V  
W X Y Z # . \$ , + : \* % & - / ) ' ; (

In this program #, +, and & will not be used. A new computer with a more extensive font is scheduled for installation in FY 1968.

Use of a computer in cataloging reports will result in significant savings in time and effort. The computer will print book catalogs faster than clerks or Flexowriter operators can produce catalog cards, especially when many descriptors would require many cards. These book catalogs can be up-dated with supplemental listings, perhaps printed every 2 months and incorporated into the previous supplement; every 6 months they could be incorporated into the main book catalog. With the main catalog and one supplement the reference librarian would need to seek citations in only two places.

---

\* A character is a number, letter, or symbol that occupies one typing space, or that space itself.





### III. THE FLEXOWRITER

After the items for the unit record have been indicated for a group of reports, each unit record is typed on 3 by 5 cards and punched in paper tape with a Flexowriter. The Documents Section uses two Flexowriters (Friden Systems Programmatic, double-case, 8-channel Selectadata MODEL STRA). The Flexowriter is a typewriter that also punches a paper tape coded with the typed material. The paper tape can then be "read" by the machine. When the Flexowriter "reads" it uses the coded tape to type automatically the information already punched there. The Flexowriters in the Documents Section include an auxiliary reader and punch in addition to the reader and punch on the main machine. With the auxiliary punch two different tapes can be punched at one time, and with the auxiliary reader the READ\* action can be switched from one tape reader to the other, thereby reading alternately from two tapes. In this way, information from two tapes can be combined into one record. The auxiliary reader permits a SEARCH operation, that is, the READ action can be halted and the tape moved forward until certain coded characters are reached on the tape.

Only the following characters on the Flexowriter keyboard are used:

0 1 2 3 4 5 6 7 8 9 a b c d e f g h i j k l m n o p q r s t u v  
 w x y z A B C D E F G H I J K L M N O P Q R S T U V W X Y Z . ,  
 - / ;

The other characters on the keyboard cannot be used because the computer has fewer characters than the Flexowriter. Upper and lower case Flexowriter codes produce the same character in the computer, so some characters must be composed artificially. These are:

<u>character</u>	<u>compose as</u>
( .....)	-/
) .....)	/-
: .....)	,,
' (apostrophe) .....	shift to upper case, then type the number 1.

In addition, the tape must carry codes for operation of the computer:  
 computer off indicated by ,/. occurring 1st, 3rd, or 5th time  
 computer on indicated by ,/. occurring 2nd, 4th, or 6th time

---

\* For greater clarity, capital letters are used o indicate specified keys on the Flexowriter.

#### IV. PREPARATION OF UNIT RECORD

##### A. PREPARATION OF INFORMATION

When a report is received, it is first reviewed to determine whether it is to be cataloged. If so, it is assigned an accession number and a copy number and is cataloged. This consists of several steps. On the title page or cover of the report the items to be used in the unit record are marked and changed, if necessary, to the form required by the cataloging rules and the limitations on the number of characters per item. Section IV, D, shows all the items to be included for each report. The rules used for descriptive cataloging are those of the Committee on Scientific and Technical Information (COSATI), Subpanel on Standardization of Descriptive Cataloging. They are published as Standard for Descriptive Cataloging of Government Scientific and Technical Reports, Revision No. 1, October, 1966. This is supplemented with the Library of Congress Rules for Descriptive Cataloging when neither COSATI nor this guide covers the situation (for example, analytics\*). No form sheet is used for cataloging. Those items that cannot be noted easily on the title page, such as descriptors or abstract, are written on a sheet of paper to be attached to the report. If the abstract in the report is to be used, it is marked and its location noted on the title page or cover, e.g. 91-p.2. Figure 3 is a sample of a marked title page.

##### B. PROGRAM TAPE

Unit records are typed on the Flexowriter with the aid of a program tape. (The Appendix includes the complete Flexowriter program and a reproduction of the program tape.) The program tape automatically types codes for the computer, indicates items of the unit record to be typed manually, and turns on the auxiliary punch for added entries\*\* and descriptors. The tape from the auxiliary punch must be read from the auxiliary reader when unit records are typed. Its use is described in Section IV,D.

---

\* Analytics means cataloging separately individual parts of a single report.

\*\* "Added entries" are portions of the unit record selected for extraction to a second tape. They include personal authors and series, contract, and project numbers. These added entries will be typed on the tops of the 3 by 5 cards and indicated for the computer so that cards can be filed or a computer listing made for each.

Tms 312

(43)

*KINETIN RIBOSIDE	-08666
*SYNTHESIS	-06763
ADENOSINE	00244
PURINES	05652
PYRIDINES	05673
REDUCTION, CHEMICAL	08601
HYDROLYSIS	03281

DEPARTMENT OF THE ARMY

(3) Fort Detrick  
 Frederick, Maryland ~~21701~~

Phys. Sci. Div.

(26)

BC-TMs-  
 TECHNICAL MANUSCRIPT 312

(4) A NEW SYNTHESIS FOR 6-FURFURYLAMINO-9- $\beta$ -D-  
 RIBOFURANOSYL PURINE (KINETIN RIBOSIDE)

(16) Herman Rutner

(17) George Svarnas

1 - UNCL  
 2 - 44847  
 3 -  
 4 -  
 8 -  
 9 - 12 p 10r  
 10 - 1, 2  
 11 - UNCL  
 16 -  
 17 -  
 26 -  
 30  
 32  
 43  
 91 - p. 2

Physical Science Division  
 BIOLOGICAL SCIENCES LABORATORY

30  
 Project IC522301A059(10) <sup>32</sup>

(8) 00 August 1966

Figure 3. Title Page Marked for Cataloging.

### C. TYPING OUTPUT

In typing the unit record, the output is a 3 by 5 card (for proof reading) and two punched (coded) paper tapes. One tape, produced on the main punch, contains all items of the unit record. The second tape, punched on the auxiliary punch, contains "added entries," descriptors, and instructions for the Flexowriter. These tapes are used to produce the 3 by 5 cards for the card catalog and the final tape for computer input. The procedure is described in Section V.

### D. PRODUCTION OF TAPE AND PROOF COPY

This Section is divided into three parts, arranged in three columns. The left column shows the unit record items, their code numbers, and the form in which they are to be typed. The center column describes the typing procedure and explains the operation of the Flexowriter for each item. The right column shows examples of the product of the typing.

UNIT RECORD ITEM

Preliminary steps

TYPING PROCEDURE

The unit record is typed on proof cards, which are 3 by 5 cards with pin-feed edges to fit on a pin-feed attachment to the Flexowriter. The left margin is set at 24. Tabs are set at 28 and 44. Place the program tape in the auxiliary reader. Depress the POWER switch on the auxiliary reader and on the auxiliary punch and the LEX switch on the auxiliary reader. TAPE FEED 1 foot of tape through the main punch and 6 inches through the auxiliary punch. Place the upper toggle switch on SEL; make sure PUNCH ALL is up on the auxiliary punch. Start at the top edge of a 3 by 5 proof card. Depress READ switch on the auxiliary reader. The program tape will automatically space and move the proof card to the proper position for the first operation.

1 - Classification of record: The classification indicated here is the classification of all parts of the unit record, considered together. The words to be used here are UNCLASSIFIED, CONFIDENTIAL, SECRET, or FOR OFFICIAL USE ONLY. The U, C, S, and F at the beginning of these words are codes for the computer.

EXAMPLES

When the number 1 is typed automatically on the proof card and the READ stops, type in the appropriate classification; then READ (main READ switch will activate the auxiliary reader).

UNCLASSIFIED | L-typed manually  
code, typed automatically

UNIT RECORD ITEM

2 - Accession number: This is the five digits assigned to the report by the Documents Section.

3 - First corporate author: 70 characters. Consists of the name and location of the agency responsible for the report, as indicated in COSATI rules. The form will be shown according to the corporate author authority list and COSATI rules. If this item exceeds 70 characters, abbreviate the name and note result in authority list. If two or more corporate authors are listed on a report, the more responsible will have been marked or the first listed corporate author will have been indicated. A second corporate author may go in Item 15.

4 - Title: 240 characters. If longer than this, abridge it, indicating elision with three periods. Follow COSATI rule 3 in determining title; put period at end of title except when it is followed by a classification marking.

TYPING PROCEDURE

When the program types 2 on proof card and READ stops, type the accession number, then push READ.

Program types 3 and READ stops. Type the corporate author. If a carriage return is necessary, put a space at the end of the line, then CARRIAGE RETURN. Do not hyphenate a word. READ to next item.

After the program types 4, type title. Space before CARRIAGE RETURN and do not hyphenate. READ to next item. If title ends at the end of a line, READ to next item even though the number will type past the margin.

EXAMPLES

244575  
| typed manually  
| code

3Oak Ridge National  
Lab., Tenn.  
Biophysical  
Separations Lab.

4Development of  
techniques for  
virus...isolation from  
large volumes of tissue  
culture.

UNIT RECORD ITEM

5 - Title classification: One character. If report is unclassified, do not use this item; use no parentheses or punctuation. Classification codes to be used are:

- U - Unclassified
- C - Confidential
- S - Secret
- B - Confidential-Restricted Data
- R - Secret-Restricted Data
- D - Confidential-Formerly Restricted Data
- T - Secret-Formerly Restricted Data
- M - Confidential-Modified Handling Authorized

6 - Short title: Ten characters. Use the short title as given on the report. Do not type the words "Short title." Follow with a period.

7 - Report type and dates: Forty characters. Consists of type of report and dates of report coverage. See COSATI rule 4. Capitalize the first letter, end with a period. Use comma only between report number and coverage dates. Use the following abbreviations:

- ann - annual
- prog - progress
- quart - quarterly
- rept - report
- semiann - semiannual
- sum - summary
- tech - technical

TYPING PROCEDURE

If 5 types past the right margin, CARRIAGE RETURN. Type the one-character code if needed. If not, READ to next item.

Special Note: If no information follows unit record items 5, 6, or 7 do not CARRIAGE RETURN until after READING to 8, even though these numbers may type beyond the right margin.

When READ stops after 6, type the short title. If no short title, READ to 7.

When READ stops at 7, type the appropriate information. If there is no report type, READ to 8.

EXAMPLES

5U

6XYA-27643.

7Quart rept 4, 1 Jan-  
1 Apr 65.  
7Semiann prog rept,  
1 Sep 65-1 Mar 66.

UNIT RECORD ITEM

8 - Date of report: Ten characters. Indicate with two characters for day, three for month, two for year. Follow with period. Always indicate a date. If no day or month is given, enter zeros for them. To the COSATI rules add that if the only date given is in item 7, use the last month and year given there.

9 - Pagination and references: Ten characters. Indicate the number of pages in the report followed by the letter p with no space between; space once, then type number of references followed by the letter r. No punctuation. Covered by COSATI rule 7.

10 - Copy number: Twenty characters. Use the copy number shown on each copy of the document or supply them sequentially beginning with 1. Type each copy number separately, with commas between but no spaces. Include the total number of copies if given.

TYPING PROCEDURE

When READ stops at 8, type date as shown; then READ to 9.

When the READ stops at 9, type numbers of pages and references; then READ to 10.

When the READ stops at 10, type the copy numbers; then READ to 11.

EXAMPLES

803 Sep 65.  
800 Mar 66.  
800 000 66.

911p  
9134p 102r

101,2  
1016,17 of 121  
10repro 4  
104, repro 1 of 10

UNIT RECORD ITEM

11 - Report classification: Use whichever of the following classification markings is appropriate:  
UNCLASSIFIED  
CONFIDENTIAL  
SECRET  
FOR OFFICIAL USE ONLY  
B CONF-RD  
R SECRET-RD  
D CONF-FRD  
T SECRET-FRD  
M CONF-MIA

12 - Control number: Twenty characters. This is the FDS number assigned to secret documents by Fort Detrick Classified Documents Control Office. Indicate as shown on report, with enclosures listed as in the second example.

13 - Security group: One character. This is the group number that must be indicated for all classified reports by the number 1, 2, 3, or 4 with no punctuation.

TYPING PROCEDURE

When the READ stops at 11, type the classification marking; then READ to 12.

EXAMPLES

11 UNCLASSIFIED  
11R SECRET-RD

When READ stops at 12, type control number and READ to 13. If there is no control number, READ to 13.

1260-FDS-2134  
1261-FDS-208, -1, -2

When READ stops at 13, type the single-digit group number, then READ to 14. If report is unclassified, READ to 14.

134

UNIT RECORD ITEM

14 - Release limitations: Use the one-character code followed by the "marking" as indicated below.\* Separate the code and marking by one space. If two limitations apply, place two codes together, space, then first marking, space, second marking.

15 - Second corporate author: Seventy characters. Place here the second most important corporate author; place any other corporate authors in the supplementary note. Form follows authority list and COSATI rules. See item 3.

TYPING PROCEDURE

When READ stops at 14, type code and marking. If there is no release limitation, READ to 15.

When READ stops at 15, type second corporate author. Then SPACE twice and CARRIAGE RETURN. If item 15 is not used, proceed as below. Following item 15 READ five times to reach item 16. At this point the auxiliary punch is activated automatically to punch the auxiliary tape of the "added entries" for items 16 through 35.

EXAMPLES

14RC REF NO CONTR  
14Q QUAD

15Center for Naval  
Analysis,  
Washington, D. C.

* Code	Marking	Meaning
I	INTEL	Intelligence report
P	PUB REL	Report available to the public
C	NO CONTR	Report not to be shown to contractors
D	FD ONLY	Report available to Fort Detrick personnel only
R	REF	Report for reference use only
Q	QUAD	Quadrupartite or Tripartite report

UNIT RECORD ITEM

16-25 - Personal authors:  
Twenty characters each. List last name, comma, first initial, period, second initial, period. No more than ten authors may be listed.

TYPING PROCEDURE

When READ stops at 16, type the first personal author, READ to 17, type the next author, READ to 18, etc. until all authors (or first ten) are typed. After the last personal author, or if there are none, SEARCH (7, 5, 4, 2, 1).\* The search will stop without typing any characters. Any READ action on items from 16 to 25 will stop in upper case. When SEARCH stops before 26, READ to item 26 if that item is desired; if an item after 26 is needed, next SEARCH to that item, depressing switches indicated for the item on the Search Chart.

EXAMPLES

16Segal,M.A.  
17Cline,G.B.  
18Warnock,R.B.,Jr.

26-27 - Originating agency series:  
Thirty characters each. This is the acronym(s) for the originating agency (first or second corporate author) and the report number and series. Determine form according to COSATI rules. Use hyphens in place of spaces, commas, or parentheses.

When READ stops at 26, type series and number, then READ to 27 and type second series and number or SEARCH to next needed item.

26ORNL-3942 26BC-TMo-134  
26BC-TMs-236  
26AS-TDR-64-130-Ot-2-Vol-1  
26FD-42 27Natick-~~TR~~-66-22-FD

\* SEARCH by depressing numbered switches on auxiliary reader in sequence and then the SEARCH switch on the same reader. The switches to be depressed are indicated by the numbers on the Search Chart (Table 2). The SEARCH eliminates from the auxiliary tape any codes that would result in unneeded cards in the production process.

TABLE 2. SEARCH CHART<sup>a/</sup>

Search Stops	Search Code
26	7, 5, 4, 2, 1 -required stopping point if any personal authors are used
27	7, 6, 1
28	7, 6, 2
29	7, 6, 5, 2, 1
30	7, 6, 3
31	7, 6, 5, 3, 1
32	7, 6, 5, 3, 2
33	7, 6, 3, 2, 1
34	7, 6, 4
35	7, 6, 5, 4, 1
36	7, 5, 1 -required stopping point if any item from 26 to 35 is used
37	7, 6, 2
38	7, 2, 1
39	7, 5, 3
40	7, 3, 1
41	7, 3, 2
42	7, 5, 3, 2, 1
43	7, 5, 4
After descriptor codes and English language descriptors	7, 5, 4, 2, 1
91	7, 4, 1

a. Search by depressing appropriate keys on auxiliary reader in sequence, then depress SEARCH key. To reach 26, 36, or 91 READ after the search stops; otherwise, SEARCH past these items to next desired number.

UNIT RECORD ITEM

28-29 - Contract or grant: Twenty characters each. Follow COSATI rules, but on DA contracts eliminate hyphens between letters and numbers except before the G for grant.

30-31 - Projects: Twenty characters each. This item is the project number shown on the report. For DA project numbers (first example) use only the first 12 characters.

32-33 - Task and work unit numbers: Ten characters each. DA task numbers are two digits, work units three digits; these are often found at the end of project numbers. In 1C52230LA08201-001, 01 is the task and 001 the work unit. The two are typed together (first example).

34-35 - Other series: Thirty characters each. This series includes the monitoring or contracting agency and any series not associated with the corporate authors. Follow COSATI rules for form.

TYPING PROCEDURE

If item 28 is to be included, SEARCH to 28 and type contract number. If there are two contract numbers, READ to 29 and type the second contract number. If not, SEARCH to next needed item.

When SEARCH stops at 30, type project number. If there is a second project, type it at 31. If not, SEARCH to next needed item.

If the READ stops at 32, type the task (and work unit number if given), then READ to 33 and type the task and work unit number for the second project. If not, SEARCH to next needed item.

If SEARCH stops at 34, type series and READ to 35, if it is to be used. If not, SEARCH to next needed item.

EXAMPLES

28DA18-064AMC301A  
28DA18-108-404CML92  
28AF-49-638-700  
29DA-SIG36-039-62-G34

301C52230LA082  
30AF8169  
3047632  
31SUMMIT

3201001

34AD-271890  
34NRL-5914

UNIT RECORD ITEM

For items 26-36

TYPING PROCEDURE

If any item from 26 through 35 is used, SEARCH after the last item up to 36 (search code 7, 5, 1). SEARCH will stop before item 36 without typing a number. To reach any item past 36, SEARCH to that item.\*

36-37 - Corporate author codes: Ten characters each. These are the computer codes for items 3 and 15. Use the Corporate Author Code List (not included in this Guide) to determine codes.

When READ stops at 36, type code as given in list; READ to 37 for second code. If none, SEARCH to next needed item.\*

38 - Supplementary note classification: One character. Use only if there is a supplementary note in unit record item 42. This item is used if the unit record is classified. Indicate here the classification of item 42 with a single code letter from the following list:

- | Code | Meaning      |
|------|--------------|
| U    | UNCLASSIFIED |
| C    | CONFIDENTIAL |
| S    | SECRET       |
| B    | CONF-RD      |
| R    | SECRET-RD    |
| D    | CONF-FRD     |
| T    | SECRET-FRD   |
| M    | CONF-MHA     |

When READ or SEARCH stops at 38, type classification code. Then READ or SEARCH to next item.

38U

\* Within items 36 to 42 the READ may be used instead of the SEARCH. For instance, to reach item 39 from item 36, either SEARCH to item 39 or READ to 37, READ to 38, and READ to 39. The READ can be used here as within items 1 through 15 because the auxiliary punch is not activated. The program tape automatically inactivates the auxiliary punch between items 36 and 42.

EXAMPLES

36WRU-CDCR  
36MIT-CIS  
37CBSL,S CO

UNIT RECORD ITEM

39 - Descriptor classification: One character. Use only if there are descriptors in unit record items 43 through 90. Indicate with a single code letter the classification of all descriptors (together) as for item 38. This item is used only if the unit record is classified.

40 - Abstract classification: One character. Use only if there is an abstract in unit record item 91. Indicate abstract classification code from list under item 38. This item is used only if the unit record is classified.

41 - NOFORN: Four characters. This marking indicates that the document is not to be disclosed to foreign nationals. It is to be used only when a report contains the special handling notices indicated in Section X, Para 68, of AR 380-5. Separate markings will be shown for the report, the title, the descriptors, and the abstract, in that order, by a 1 if the NOFORN statement applies and by a 0 if it does not apply.

TYPING PROCEDURE

When READ or SEARCH stops at 39, type classification code for descriptors. Then READ or SEARCH to next needed item.

When READ or SEARCH stops at 40, type code. READ or SEARCH to next needed item.

When READ or SEARCH stops at 41, type the four NOFORN codes as indicated. READ or SEARCH to the next needed item.

EXAMPLES

39C

40S

411C01 (1 indicates that NOFORN applies to report and abstract, 0 that NOFORN does not apply to title and descriptors).

UNIT RECORD ITEM

42 - Supplementary note: One hundred characters. Use as indicated in COSATI rules; include the following uses:  
Third and fourth corporate author  
Connection with an agency not a corporate author  
Series note  
Analytcs  
Bound with  
Dissertation note  
Contents note

(Consult the Library of Congress Rules for Descriptive Cataloging for an explanation of the last five)

43-90 - Descriptor codes: Ten characters each; 48 codes of five characters each are permitted; the other characters are needed for computer instructions. These are the codes assigned to the English language descriptors and are taken from the revised Fort Detrick Thesaurus. The codes are for the computer tape only and do not appear on the completed 3 by 5 cards. Two levels of descriptors are indicated, the major descriptors by a hyphen preceding the code, the minor descriptors with no hyphen.

TYPING PROCEDURE

When READ or SEARCH stops at 42, type supplementary note. At the end of a line SPACE before CARRIAGE RETURN. Following this item, READ to the first descriptor at 43, or SEARCH (7, 4, 1)\* for the abstract or to end of record.

EXAMPLES

42 Translation of two articles from the Russian

43 p-50176ss44p-10798ss  
45 p91001

Underlined items are typed manually. p means no print and s means space; these characters will not appear on the typed copy.

If there are no descriptor codes SEARCH (7, 4, 1) to the abstract. If there is no abstract, CARRIAGE RETURN to end of card. When READ or SEARCH stops at 43, type a no-print code (depress SPACE bar while AUX CODE key is depressed), then type the descriptor code (with hyphen if a major descriptor). READ to 44, type a no-print code, then a descriptor code, etc. At the end of a line TAPE SKIP instead of CARRIAGE RETURN. This automatically returns the carriage and types in the number for next descriptor. After the last code is typed, SEARCH (7, 5, 4, 2, 1);

\* See explanation under item 16 through 25.

UNIT RECORD ITEM

TYPING PROCEDURE

EXAMPLES

English language descriptors:  
Forty characters each. These are English language descriptors taken from the revised Fort Detrick Thesaurus. Major descriptors are indicated by an asterisk. These descriptors are for the 3 by 5 cards only, and because they are not for the computer, they are not numbered.

SEARCH stops without typing a number. English language descriptors follow.

The SEARCH (7, 5, 4, 2, 1) stops without typing a number. Type the English language descriptor. READ to the next stop, type the next descriptor, READ, and so on to the last descriptor. Do not hyphenate a descriptor at the end of a line; it must fit on one line. After the last descriptor on a line, TAPE SKIP to reach the next descriptor. After the last descriptor is typed, SEARCH (7, 5, 4, 2, 1). This puts an ending on the last descriptor and stops before reaching item 91 (abstract). End the record here or proceed to the abstract. For additional instruction on typing descriptors, see Section IV, E.

\*VIRUSES. TISSUE  
CULTURES. ASSAY.

91 - Abstract: 980 characters.  
The abstract is always typed on the second 3 by 5 card and is limited to 980 characters.

To complete the tapes for the first 3 by 5 card and transfer to the next one for the Abstract, type no-print code (depress SPACE bar while AUX CODE key is depressed), turn computer off (/,.), type print-restore code (depress zero while AUX CODE is depressed), and CARRIAGE RETURN to top of next card. TAPE FEED 6 inches on main punch.  
CARRIAGE RETURN twice, then type the accession number, single-space, type -/abstract/- and triple-space. Type the no-print code, turn computer on (/,.), and type print-restore code. READ to 91 and type the Abstract. If a second card is needed to complete the Abstract, run it onto the next card with no break. (See Fig. 4.)

See Figures 4 and 5.

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44528

Army Biological Center, Frederick, Md. Phys. Def. Div.

The need for biological decontamination of field shelters, occupants, and methods of control,, a review of contractual literature. 00 Jun 66. 46p 16r

1,2 UNCLASSIFIED

Decker, H.M.

BC-TMo-93. 1C622401A072 pr.

\*DECONTAMINATION. \*SHELTERS. FIELD TESTS. EVALUATION. SERRATIA MARCESCENS. TESTS. AIRLOCKS. AEROSOL. STEEL. BACILLUS SUBTILIS. SURFACES. PERACETIC ACID. ALUMINUM. LEATHER. REVIEWS. COLLECTIVE SHELTERS. MICROORGANISMS. CLOTHING. FIBERS. \*CONTAMINATION. PERSONNEL. AIR FLOW. HUMAN. VAPORS. TENTS.

44528 -/abstract/- The ext of the problems of contamination and decontamination of clothing and man has been summarized. Consideration should be given to practical studies on the decontamination of the soldier entering collective protective shelters in the field. Laboratory data developed by Litton Industries indicate that peracetic acid is the decontaminant of choice because a 1 per cent solution was highly effective in reducing *Serratia marcescens* and *Bacillus subtilis* var. *niger* microorganisms in the air and on surfaces when exposed for 120 to 240 seconds. The procedure requires further study which would include medical safety, stability, cost, and logistics. Consideration has been given to utilization of increased filtered air flow through airlocks of field shelters -/pods/- to remove airborne microorganisms in the airlock and possibly some of the microorganisms previously deposited on the clothing of contaminated personnel. Data obtained in these tests were preliminary but were promising enough to require further investigation.

Figure 4. Completed Card for Manual File.

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3Army Biological Center, Frederick, Md. Phys. Def. Div.

4The need for biological decontamination of field shelters, occupants, and methods of control,, a review of contractual literature. 5 6 7 800 Jun 66. 946p 16r 101,2 11UNCLASSIFIED 12 13 14

1516Dacker, H.M.

26BC-TMO-93. 301C622401A072 pr.

43 -01939 44 -06400 45 08519 46 06141 47 02704

48 02500 49 08616 50 00269 51 00791 52 06725 53 05286

54 00358 55 08045 56 06631 57 07770 58 08613 59 07950

60 01601 61 02671 62 -01720 63 05313 64 08614

65 03255 66 07301 67 08615

\*DECONTAMINATION. \*SHELTERS. FIELD TESTS. EVALUATION. SERRATIA MARCESCENS. TESTS. AIRLOCKS. AEROSOLS. STEEL. BACILLUS SUBTILIS. SURFACES. PERACETIC ACID. ALUMINUM.

LEATHER. REVIEWS. COLLECTIVE SHELTERS. MICROORGANISMS.

CLOTHING. FIBERS. \*CONTAMINATION. PERSONNEL. HUMAN.

AIR FLOW. VAPORS. TENTS.

,/.0

44528 -/abstract/- ,/.091The extent of the problems of contamination and decontamination of clothing and man has been summarized. Consideration should be given to practical studies on the decontamination of the soldier entering collective protective shelters in the field. Laboratory data developed by Litton Industries indicate that peracetic acid is the decontaminant of choice because a 1 per cent solution was highly effective in reducing *Serratia marcescens* and *Bacillus subtilis* var. *niger* microorganisms in the air and on surfaces when exposed for 1.0 to 240 seconds. The procedure requires further study which would include medical safety, stability, cost, and logistics. Consideration has been given to utilization of increased filtered air flow through airlocks of field shelters -/pods/- to remove airborne microorganisms in the airlock and possibly some of the microorganisms previously deposited on the clothing of contaminated personnel. Data obtained in these tests were preliminary but were promising enough to require further investigation.

Figure 5. Proof Cards from First Typing.

UNIT RECORD ITEM

End of record

TYPING PROCEDURE

The unit record for a report can end at any point after item 15.

EXAMPLES

<u>If last item is</u>	<u>1st Step</u>	<u>2nd Step</u>
15	READ four times	} CARRIAGE RETURN to top of next card and begin next unit record.
16-25	SEARCH (7,5,4,2,1)	
26-35	SEARCH (7,5,1)	
36-42	None	
43-90	SEARCH (7,5,4,2,1)	
91	None	

## E. SECOND CARDS

### 1. Descriptors at Bottom of Card

Because descriptor codes are not printed on the final catalog cards, the space required by the codes on the first proof card will be used for the English language descriptors on the final card. When the proof cards are made the English language descriptors may be typed on a second proof card on as many lines as the codes occupy on the first card. If there are three lines of descriptor codes at the bottom of the first proof card, three lines of English language descriptors may be typed on the second proof card. When inserting CARRIAGE RETURNS insert an extra CARRIAGE RETURN for each line of descriptor codes. Figures 6 and 7 are sample proof and final cards.

### 2. Descriptors on Second Descriptor Card

If the descriptors require more than one card, proceed as follows: After the last descriptor on the first card, READ to obtain the ending. When the READ stops, turn the power off in the auxiliary punch, shift to lower case, space twice, type `-/cont./-` then CARRIAGE RETURN twice, type the accession number followed by `-/card 2/-` and three spaces, turn power on in the auxiliary punch, shift to upper case, type the next English language descriptor, and proceed as usual for descriptors (Fig. 8 through 10). Remember to allow space on the last line for `-/cont./-` in each instance.

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3Army Biological Center, Frederick, Md. Dept. of Medical Research

4Studies on the characteristics of the genus Bartonella considering pathogenicity, morphology, epidemiology, ecology and taxonomy, including a review of the literature; part 1. 5 6 7Semiann prog rept, 1 Jan-1 Jun 65. 8 08 Jun 65. 9102p 344r

101,2 11UNCLASSIFIED 12 13 14

1516Barber, J.M. 17Sitel, B.L. 18Roberts, G.F. 19Royce, T.M. 20Wittgenstein, R.M.

26BC-TMs-576. 303A014561B45G.

42Includes the following reports,, Identification of Bartonella bacilliformis, by B.L. Sitel; Cultural investigation of Bartonella, by G.F. Roberts; Taxonomy of Bartonella, by T.M. Royce. ,/.0 -/cont./-

2

67354 -/card 2/- ,/.0

43 05647 44 09473 45 02834 46 01346 47 01236 48 05634  
49 04637

BARTONELLA. PATHOGENICITY. MORPHOLOGY. EPIDEMIOLOGY.  
TAXONOMY. ECOLOGY. REVIEWS.

Figure 6. Second Card for Proof.\*

\* This form is used when the second card is reached before descriptor codes are typed.

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Decker, H.M.
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The need for biological decontamination of field shelters, occupants, and methods of control,, a review of contractual literature. 00 Jun 66. 46p 16r
1,2 UNCLASSIFIED
Decker, H.M.
BC-TMO-93. IC622401A072 pr.
*DECONTAMINATION. *SHELTERS. FIELD TESTS. EVALUATION. SERRATIA MARCESCENS. TESTS. AIRLOCKS. AEROSOL. STEEL. BACILLUS SUBTILIS. SURFACES. PERACETIC ACID. ALUMINUM. LEATHER. REVIEWS. COLLECTIVE SHELTERS. MICROORGANISMS. CLOTHING. FIBERS. *CONTAMINATION. PERSONNEL. AIR FLOW. HUMAN. VAPORS. TENTS.

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*DECONTAMINATION
44528
Army Biological Center, Frederick, Md. Phys. Def. Div.
The need for biological decontamination of field shelters, occupants, and methods of control,, a review of contractual literature. 00 Jun 66. 46p 16r
1,2 UNCLASSIFIED
Decker, H.M.
BC-TMO-93. IC622401A072 pr.
*DECONTAMINATION. *SHELTERS. FIELD TESTS. EVALUATION. SERRATIA MARCESCENS. TESTS. AIRLOCKS. AEROSOL. STEEL. BACILLUS SUBTILIS. SURFACES. PERACETIC ACID. ALUMINUM. LEATHER. REVIEWS. COLLECTIVE SHELTERS. MICROORGANISMS. CLOTHING. FIBERS. *CONTAMINATION. PERSONNEL. AIR FLOW. HUMAN. VAPORS. TENTS.

Figure 7. Completed Cards with Headings.

<p>UNCLASSIFIED</p> <p>267354</p> <p>3Army Biological Center, Frederick, Md. Dept. of Medical Research</p> <p>4Studies on the characteristics of the genus Bartonella considering pathogenicity, morphology, epidemiology, ecology and taxonomy, including a review of the literature; part 1. 5 6 7Final rept. 808 Jun 65. 9102p 344r</p> <p>101,2 11UNCLASSIFIED 12 13 14</p> <p>1516Barber, J.M. 17Sitel, B.L. 18Roberts, G.F. 19Royce, T.M. 20Wittgenstein, R.M.</p> <p>26BC-TMs-576. 303A014561B45G.</p> <p>42Includes the following reports,, Identification of Bartonella bacilliformis, by B.L. Sitel; Cultural investigations of Bartonella, by G.F. Roberts.</p> <p>43 37845 44 43567 45 12398 46 10100 47 67489 48 93456</p> <p>49 45678 50 34567 51 67256</p> <p>BARTONELLA. PATHOGENICITY. ECOLOGY. -/cont./-</p> <p>67354 -/card 2/- BARTONELLA BACILLIFORMIS. MORPHOLOGY. REVIEWS. TAXONOMY. EPIDEMIOLOGY.</p>
---

Figure 8. Second Descriptor Proof Card.\*

\* This form is used when it is estimated that the descriptors will run over to a second card.

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Army Biological Center, Frederick, Md. Dept. of Medical Research

Studies on the characteristics of the genus Bartonella considering pathogenicity, morphology, epidemiology, ecology and taxonomy, including a review of the literature; part 1. Final rept. 08 Jun 65. 102p 344r

1,2 UNCLASSIFIED

Barber, J.M. Sitel, B.L. Roberts, G.F. Royce, I.M. Wittgenstein, R.M.

EC-IMS-576. 3A014561E45G.

Includes the following reports,, Identification of Bartonella bacilliformis, by B.L. Sitel; Cultural investigations of Bartonella, by G.F. Roberts.

BARTONELLA. PATHOGENICITY. ECOLOGY. -/cont./-

67354 -/card 2/- BARTONELLA BACILLIFORMIS. MORPHOLOGY. REVIEWS. TAXONOMY. EPIDEMIOLOGY.

Figure 9. Second Descriptor Card Completed.

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Sitel, B.L.

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Army Biological Center, Frederick, Md. Dept. of Medical Research

Studies on the characteristics of the genus Bartonella considering pathogenicity, morphology, epidemiology, ecology and taxonomy, including a review of the literature; part 1. Semiann prog rept, 1 Jan-1 Jun 65.

08 Jun 65. 102p 344r

1,2 UNCLASSIFIED

Barber, J.M. Sitel, B.L. Roberts, G.F. Royce, T.M. Wittgenstein, R.M.

BC-TMs-576. 3A014561B45G.

Includes the following reports,, Identification of Bartonella bacilliformis, by B.L. Sitel; Cultural investigation of Bartonella, by G.F. Roberts; Taxonomy of Bartonella, by T.M. Royce. -/cont./-

Sitel, B.L.

67354 -/card 2/-

BARTONELLA. PATHOGENICITY. MORPHOLOGY. EPIDEMIOLOGY. TAXONOMY. ECOLOGY. REVIEWS.

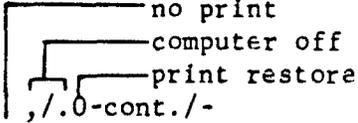
Figure 10. Second Card Completed.

### 3. Second Card

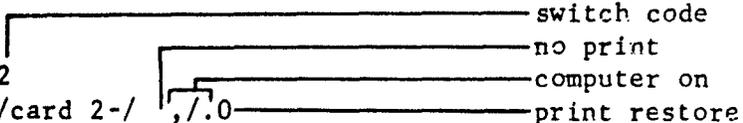
The following procedure is used when items 1 through 42 do not fit on one card. See above when a second card is needed for descriptors or abstract. Finish the last item on the first card, then in turn, no-print (depress SPACE bar while AUX CODE is depressed), computer off (,/.), and print-restore (depress zero while AUX CODE is depressed). Then type -/cont./- and CARRIAGE RETURN. This should bring the top of the next card to the typing line. TAPE FEED 3 inches. CARRIAGE RETURN twice, TAB, switch code (depress 2 key while AUX CODE key is depressed), CARRIAGE RETURN, and shift to lower case.

Type the accession number and -/card 2/-. Then in turn, no-print, computer on (,/.), print restore, and CARRIAGE RETURN. Continue from previous card. Remember to allow space for -/cont./- at bottom of first card (Figures 9 and 10).

#### EXAMPLE

first card            26BC-TMs-576.    303A01456B45G.    

---

second card    42506 -/card 2-/    
  
42includes the following papers: Identification of Bartonella bacilliformis, by B.L. Sitel; Cultural studies on Bartonella, by G.F. Roberts.

## V. COMPLETED PRODUCT

The typing procedure described in Section IV produces a proof card and two tapes for each record. The proof card is used only for proofreading. The two tapes are required to produce 3 by 5 cards. The first tape (main punch) is used to produce computer input.

### A. PROOFREADING AND CORRECTIONS

The cataloging librarian proofreads the proof cards and notes corrections on them. The unit record tape (punched on the main punch) is corrected by deletion, splicing, or running a new tape. The second tape, containing added entries and descriptors (punched on the auxiliary punch), is not corrected. It is used only to print headings on the tops of catalog cards, and may contain added entries and descriptors for perhaps 20 reports, separated by tape feeds. One section on this second tape may have to be skipped entirely in printing the cards because of a typographical error. The clerk printing the cards can recognize this point because a proof card will have been crossed out. That portion of the unit record tape will be replaced later, but the section with errors is left in the second tape. The clerk in this case moves the second tape in the reader to the next tape feed and uses the following section. If an individual added entry or descriptor is incorrect, the second tape is turned past that item manually; an extra card with no heading must then be made and the correct heading typed in manually.

### B. CARD PRODUCTION

Each unit record tape is looped and the Accession Number is marked on it. The Abstract is cut off but not looped, and the accession number is followed by "a". Place on the main reader the tape containing the unit record produced in the main punch. Place in the auxiliary reader the second tape containing added entries and descriptors produced in the auxiliary punch. Turn on power in both readers. Do not activate the punches. Depress the LEX key on the auxiliary reader. READ from the main reader to print cards until the STOP code at the end of the tape in the auxiliary reader stops the READ action. Manipulate the second tape to correct it as necessary. Insert abstract tape and run through main reader once. The product should be three cards with no headings, one card with heading for each item of the unit record used between 16 and 35 and between 43 and 90 (Figures 4 and 7), and one abstract card. Remove the cards and tapes and store the tapes containing the unit record and abstract. The second tape with added entries and descriptors may be discarded.

A second-card section on the unit record tape must be handled separately unless it is for a second descriptor or abstract card. Tear the second-card part of the tape from the first part at the tape feed. Read each section independently, using the corresponding second tape on the auxiliary reader. Second descriptor cards and second abstract cards are not treated separately and are run with the rest of the unit record.

If item 15, a second source, is used or if a second title card is needed, additional cards must be made without headings and with the power off in the auxiliary reader. After the extra cards are printed, switch power on in the auxiliary reader and proceed.

### C. COMPUTER TAPE

The tape for computer input is produced by reading from the main reader on ALL PUNCH the stored unit record tapes and abstracts, running approximately 20 records on one roll of tape. Put a STOP code after the last record on the roll. Allow 2 feet of blank tape at beginning and end.

## APPENDIX

## FLEXOWRITER PROGRAM

A prepunched program tape must be used when a unit record is typed. The complete set of instructions contained on this tape is shown in Figure 1. The codes in Figure 1 are:

- ADD\* - ADD indicates an "address." In this work, "address" is a code to indicate that a related symbol is the end point of a search. If the symbol has no "address" code, it will be by-passed. The asterisk is used when a part of the program is repeated but different letters or numbers are used in each repetition; a letter or number replaces the asterisk in the actual program. ADD plus a character indicates the character to be sought.
- CR - carriage return
- LC - lower case
- NP - no print; this instruction causes the instructions or characters following it to be punched, but not typed.
- OFF - turns off both punches
- ON1 - turns on the main punch
- ON2 - turns on the auxiliary punch
- PR - print restore; this instruction causes characters following it to be typed; it restores the typing operation after no print has turned it off.
- SP - space
- STP - stop; this instruction stops the READ action automatically.
- SW - switch; this instruction moves the READ action from one reader to the other.
- TAB - tabulate
- TSR - tape skip restore. When the TAPE SKIP switch is depressed, the reader skips over all following codes until it comes to the TSR code; this code starts the READ action again. There is no TAPE SKIP on the program; that operation is performed by the typist.
- UC - upper case

## A. CODES FOR MANUAL COPY

1-91: Characters 1 through 91, which occur in the program tape following the computer code numbers 01 through 91, are not punched on the unit record tape; they are typed only on the proof card to tell the typist what item has been reached.

TAB and CR: These codes position the card for manual copy, but will be ignored by the computer.







ON2: This code turns on the auxiliary punch to type added entries and descriptors to be used as card headings.

ADD\*: The "addresses" are used for manual search to skip unneeded items.

SW: These switch codes occur at the beginning of the unit record tape and after each added entry and descriptor to switch the READ action back to the main reader.

#### B. CODES FOR MACHINE COPY

01-91: These characters identify for the computer each item on the tape. They do not print on the cards.

The computer configuration code (,/. ) will turn the computer off and on so that it will skip information required only for the 3 by 5 cards.

DOCUMENT CONTROL DATA - R&D		
<i>(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)</i>		
1 ORIGINATING ACTIVITY (Corporate author) Department of the Army Fort Detrick, Frederick, Maryland 21701		2a REPORT SECURITY CLASSIFICATION Unclassified
		2b GROUP
3 REPORT TITLE SIMULTANEOUS PRODUCTION OF CATALOG CARDS AND COMPUTER INPUT		
4 DESCRIPTIVE NOTES (Type of report and inclusive dates)		
5 AUTHOR(S) (Last name, first name, initial) Butler, Robert W. Schofield, Paula Z.		
6 REPORT DATE February 1967	7a TOTAL NO OF PAGES 43	7b NO OF REFS none
8a CONTRACT OR GRANT NO	9a ORIGINATOR'S REPORT NUMBER(S) Miscellaneous Publication 21	
b. PROJECT NO none	9b OTHER REPORT NO(S) (Any other numbers that may be assigned this report)	
c.		
d.		
10 AVAILABILITY LIMITATION NOTICES Distribution of this publication is unlimited; it has been cleared for release to the general public. Non-DOD agencies may purchase this publication from Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia, 22151.		
11 SUPPLEMENTARY NOTES	12 SPONSORING MILITARY ACTIVITY Department of the Army Fort Detrick, Frederick, Maryland 21701	
13 ABSTRACT A cataloging system is described that is based on simultaneous production of computer input and 3 by 5 cards for a manual reference file, using a Friden Flexowriter with an auxiliary punch and auxiliary reader. From 3 to 60 cards per document are produced that describe the document, including accession number, corporate author, title, date of publication, number of pages, security classification, personal author, series number, contract number, project number, and descriptors or subject headings.		
14. Key Words Computers                      Records Catalog                        Paper tape punch Tape typewriters              Program tapes Reference		