

COMPUTER INDEXING OF THE PRESIDENTIAL PAPERS IN THE LIBRARY OF CONGRESS

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Preface

"The index to the Abraham Lincoln Papers is a direct result of Public Law 84-147, dated August 16, 1957, the object of which is to inspire informed patriotism, to provide greater security for the original manuscripts, and to make the Lincoln and other Presidential Papers more accessible and useful to scholars and other interested persons. The law authorizes and directs the Librarian of Congress to arrange, microfilm, and index the papers of the 23 Presidents whose manuscripts are in the library. An appropriation to carry out the provisions of the law was approved on July 31, 1958, and operations began on August 25."

The above paragraph was taken from the index to the Abraham Lincoln Papers and best describes the purpose and goal of the Presidential Papers Program. This paper explains how the index was prepared on unit record equipment, the problems encountered, and the solution or partial solution of those problems with the use of a small scale computer.

Solution with Unit Record Equipment

Merely microfilming the manuscripts of the various presidents would not increase their usefulness unless there was some tool that could be used to locate the manuscripts on film. The responsible staff members at the Library of Congress decided in 1958 that this tool would be an index by writer or recipient of the manuscript and in addition would contain the following information:

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1. date of document
2. series number
3. number of pages
4. additional pertinent information.

With the number of entries varying from 1,089 in the Taylor index to about 530,000 in the Taft index, it was a natural decision to use unit record equipment then available in the Library of Congress to assist in the tremendous alphabetic sorting task. At that time the Library had IBM model 407 tabulators, model 83 sorters, model 85 collators, and model 519 reproducers. Five years later it converted to a small scale computer operation.

Librarians soon learned that the punched card has the inherent disadvantage of containing only eighty columns of information with very rigid fields of information within these 80 characters. These restrictions caused no problems for items with fixed lengths such as president number, date of document, or case file number, but problems were anticipated with only 36 of the 80 columns remaining for the name of the writer and recipient of the manuscript. Rather than attempting to use a rigid limitation of 19 columns for the writer and 17 columns for the recipient, it was felt that one variable length field of 36 columns would offer greater flexibility for indexing. The name of the writer or recipient would be terminated by the words "TO," "FR" (From) or "VS" (VERSUS). Figure 1 shows the card format. This successfully allowed the indexer to use more columns for the writer or recipient on the merits of each individual entry. As an example, the following entry would be impossible to place in two rigid fields of 18 and 17 columns: "Birmingham Peace Jubilee to WMK." The name of the writer here requires 24 columns.

The use of one variable length field solved one problem but created another. How could the mechanical sorter tell where one field ended and the other one started? It just could not. Sorting the entire field would place all "FR" entries before all "TO" entries for the same writer or recipient rather than chronologically within each writer or recipient. It therefore became necessary to select an arbitrary number of columns (one that would not extend up to the TO, FR, or VS in the majority of entries) to sort mechanically, followed by a hand sort for all conditions that were not properly alphabetized.

Filing Problems

In addition to the limitations of the mechanical sorter to handle a variable length field, there were many filing rules that could not be performed because they varied from character for character sorting

and the collating sequence of the sorter. One may think he sorts character for character until he uses a mechanical sorter. In the "Date of Document" field, for instance, the following entries were used. The list indicates the desired sequence:

	<u>Description</u>	<u>Entry</u>
1.	Cross Reference	See Also
2.	Month, year, and day	1912 MY 12
3.	Month and year	1912 MY
4.	Compound Month	1912 MY-JE
5.	Year Only	1912
6.	Compound year	1912-1913
7.	Estimated Date	ND*1912-1913
8.	No date	ND

Character for character sorting would place them in the following sequence:

1.	Year Only	1912
2.	Year and month	1912 MY
3.	Year, month, and day	1912 MY 12
4.	Compound month	1912 MY-JE
5.	Compound year	1912-1913
6.	No date	ND
7.	Estimated Date	ND*1912-1913
8.	Cross reference	SEE ALSO

All of these deviations from character for character sorting in the "Date of Document" field had to be hand filed, but greater problems arose in the writer or recipient portion of the card. Typical examples of further deviations would be names with a prefix such as McIntyre, McCooley, O'Bryan, O'Leary, and words that should be ignored, such as "MRS" and "ETAL."

Sorting and Hand Filing with Unit Record Equipment

To hand file the cards properly, it was first necessary to list the cards on the IBM 407 tabulator. The listing was then checked for discrepancies. The card representing the discrepancy had to be found in the card deck and then hand filed in its proper sequence. The card decks were then listed again to verify that all hand filing was done properly.

File Maintenance with Unit Record Equipment

The editing for spelling, consistency in indexing, etc., was also done at this time. To change an entry, it was necessary for the editors to locate the card representing the entry on the list, write the change on the card, and submit the card for keypunching. When the cards were returned, they had to be compared for accuracy of punching, then hand filed in their proper sequence.

Certainly many bibliographic projects on unit record equipment must follow a close parallel to the foregoing system. The main problems are hand filing and file maintenance, the latter meaning the ability to make additions, deletions, and changes.

Solution with a Computer

On January 17, 1964, a small scale IBM computer was put into operation at the Library of Congress. It consisted of 8,000 positions of memory, 4 magnetic tape units, a 1403 printer, and 1402 card read punch. Although its main purpose was to serve the Library's business and fiscal needs, we felt certain that it could be used to great advantage in solving some of the problems in preparing the indexes to the Presidential Papers. It would have been ideal if an entirely new system could have been developed at this time, but unfortunately a great deal of work had been done on the indexes to various presidents long before the computer arrived.

The computer system decided on has four main phases. Each phase on the accompanying flow chart is on a separate page. The following narrative description is written in this sequence and carries the step number of the flow chart to allow a cross reference between narrative and flow chart.

Phase 1—Create Index on Magnetic Tape (see Appendix)

Strangely enough, the problem of sorting a variable length field led to the system technique that was used to solve some of the hand filing rules. A sorting operation on a computer is much like that of a mechanical sorter in that it will only sort character for character, and the length of the field to be sorted must be clearly defined.

(1) It was evident that to solve the problem of a variable length field it would be necessary to establish a fixed length field on

tape. This was done by searching the "Writer or Recipient" portion of the card as it was being transferred to tape for "TO," "FR," or "VS." When this limitation was found, that portion up to but not including "TO," "FR," or "VS," was placed in a fixed length field of 44 characters that we called the "Sort Key." All unused portions of the sort key were filled with blanks. The "Date of Document" field was also searched, and appropriate substitutions of values (see below) were made that would give the desired arrangement according to the collating sequence of the IBM 1401 computer which is special character first, followed by letters, followed by numbers. This substitution of the date field was placed in the rightmost portion of the sort key leaving 36 positions for the writer or recipient. Each entry on tape would now contain the card image and the 44 character sort key establishing a 124 character fixed length tape record. Figure 2 is an actual "tape print out" of a few tape records.

Listed below are the substitutions made in the "Date of Document" field. These substitutions can also be seen in Figure 2 by comparing the entry to the date portion of the sort key:

<u>Entry in "Date of Document" Field</u>	<u>Substitution in Sort Key</u>
SEE	00000001
SEE ALSO	00000002
1916 MY 6	19160506
1916 MY	19160588
1916 MY-JE	19160599
1916	19168888
1916-17	19169988
ND*1916-1917	19169999
ND	99999999

It was at this point in the process that it was discovered some of the hand filing rules could be solved by manipulating the sort key in much the same manner as the "Date of Document" field had been, either by removing words and characters or by substituting values that would produce the desired sequence. For instance, it was a relatively simple matter to substitute "MAC" for all "MC" entries, because "MC" should be sorted as "MAC." Names like O'Leary and O'Bryan should sort as if there were no apostrophe. The apostrophe was removed, and all characters to the right of the apostrophe were shifted one position to the left.

An entry such as "Walen Mrs J A" was a little more complex but, nevertheless, was handled without too much difficulty. These entries should be filed as the last entries for Walen J A and chronologically within themselves. Removing "MRS" from the sort key would make the entry sort with "Walen J A" and by placing a "9" in

the rightmost position of the sort key would give the entry a greater value than any other entry for "Walen J A" thereby forcing it to fall after all "Walen J A" entries. Figure 2 line 9 is a good illustration of this type of data manipulation.

The original computer program also successfully filed all numbers from 1 to 100 as if they were spelled out. This was accomplished by finding a number in the entry and locating its spelled out equivalent in a table located in memory. The word was then substituted for the number in the sort key which, of course, would force the entry to sort as if it were spelled out. It was later decided that this filing rule would not be followed. In its place we may substitute spelled out words for key abbreviations. These key abbreviations will vary from index to index so the computer program would be developed with the flexibility to change the abbreviations used for each index. The number of abbreviations that can be handled would normally be determined by the core storage capacity of the computer, but a technique could be developed that would provide for thousands of abbreviations.

Although these are the only filing rules that were programmed, there are many others that could have been easily incorporated but were not required in the indexes to the Presidential Papers.

On the surface these few filing exceptions sound trifling, but in the Benjamin Harrison index (about 77,000 entries) we were amazed to find that 47-1/2 man days of hand filing and 21 days of machine sorting were eliminated and that the sorting of the "Date of Document" column was so flawless it is no longer edited. The contribution of computer application to this program increases in direct proportion to the size of the index and therefore will be of crucial importance in preparing some 400,000 index entries for the Wilson Papers and 530,000 for the Taft Papers. The Presidential Papers Section has estimated that 8 months of mechanical sorting and 1-1/2 man years of hand filing will be saved in preparing the index to the Taft Papers through this system.

(2) With the index now on tape, the tape file is ready to be sorted by the sort key. Because the manipulated date is part of the sort key, this places the file in sequence chronologically within each writer or recipient. The file is now ready for a preliminary listing to be used for editing.

(3) As the index is being listed, the computer program assigns accession number or sequence number to each entry thereby creating a unique identification. (See Figure 3). The entry plus this accession number is printed and written on another tape at this time, but the sort key used in the sort is dropped as it is no longer needed in the process. The new tape index now contains only 88 characters—80 for the card image and 8 for the accession number.

Phase 2—Edit and Change Report (see Appendix)

(4) To make a change, the editor records on the change form (see Figure 4) the accession number and only the changing information. (In a unit record process it would have been necessary to record the entire entry.) To change the sequence of an entry, the editor records the "from accession number" and the "to accession number" that will place the entry in its proper sequence. After the changes have been keypunched, the cards are ready for an edit and change report. (See Figure 5).

The cards are now read by the computer and matched against the tape index on accession number. The entry which is printed before the change and after the change is then reviewed by the editors to verify that all changes were made correctly. If a discrepancy does exist, further changes are submitted, and the above procedure is repeated until there are no errors.

Phase 3—Update Index (see Appendix)

(5) The change cards are now ready to update the tape index. All entries on the tape index that are to be changed are deleted, and the remainder of the file is written onto another reel of tape at the same time the corrected entry is written on an alternate tape. The net result is a reel of tape representing the index less all changes and a reel of tape containing only changes.

Phase 4—Final Report (see Appendix)

(6) The change tape is now sorted by accession number and is ready to merge in the main file. If the changes had been included with the main tape, the entire file would have to have been sorted to place the changes in their proper sequence within the index.

(7) The main file and changes are merged at the same time the listing for photo offset is made. (See Figure 6). This computer program also has the ability to run only selected pages of the index in the event a page or pages are damaged.

Conclusion

This paper describes the solution of a fairly extensive but relatively simple editing and filing problem by computer. It was not necessary to attempt to develop a program that would accommodate all filing rules, nor is it certain that such a program is possible for a highly complex dictionary catalog. However, after a limited examination of the 180 pages of the "Filing Rules for the Dictionary Catalogs of the Library of Congress," which is presumably as complex and detailed as any codes the Library might attempt to computerize, the problem may be somewhat less difficult than had been anticipated.

In reading through the Filing Rules to note all the filing exceptions, it soon became obvious that the task would be endless. However, a pattern in these exceptions quickly became apparent. While a printed manual of this type must necessarily describe each exception separately in detail, many of the exceptions were actually similar to one another (some identical) when expressed in computer logic. Moreover, many filing exceptions in the printed code would turn out not to be exceptions in character for character sorting on the computer.

Below are just a few examples of the many areas in which there are similar or identical exceptions:

1. commas after surnames
2. commas after forenames
3. Bible entries-New Testament before Old Testament
4. corporate entries
5. the rules for person, place, thing, title.

Actually, all the rules for exceptions in the above areas are identical in nature, with only one exception. The computer cannot differentiate between such things as name entries (Lincoln, Abraham) and place entries (Lincoln, Nebraska). These entries could however be identified by the cataloger as the entry was being prepared for computer input by coding "A" for person, "B" for place, "C" for thing, and "D" for title. Placing this code in its proper location in the sort key would force the entries to sort A, B, C, D or person, place, thing, title.

For a successful operation, a joint effort by the library and data processing personnel will be required. In this partnership the cataloger will have to understand thoroughly computer sorting to supply the codes properly.

A project before us now is the author and title index to the Catalog of Copyright Entries which is somewhat more complicated than the indexes to Presidential Papers. Efforts here will necessarily

be slanted to the filing rules used in this index rather than to a generalized program. However, greater depth in filing is planned, and it is confidently believed that the majority of the filing rules used in this index can be accommodated. Problems in foreign languages, abbreviations, and in filing numbers as if they were spelled out can be anticipated. The easiest solution to the latter two (abbreviations and numbers) would be to use a variable length record that could be large enough to spell out all words and write out all numbers.

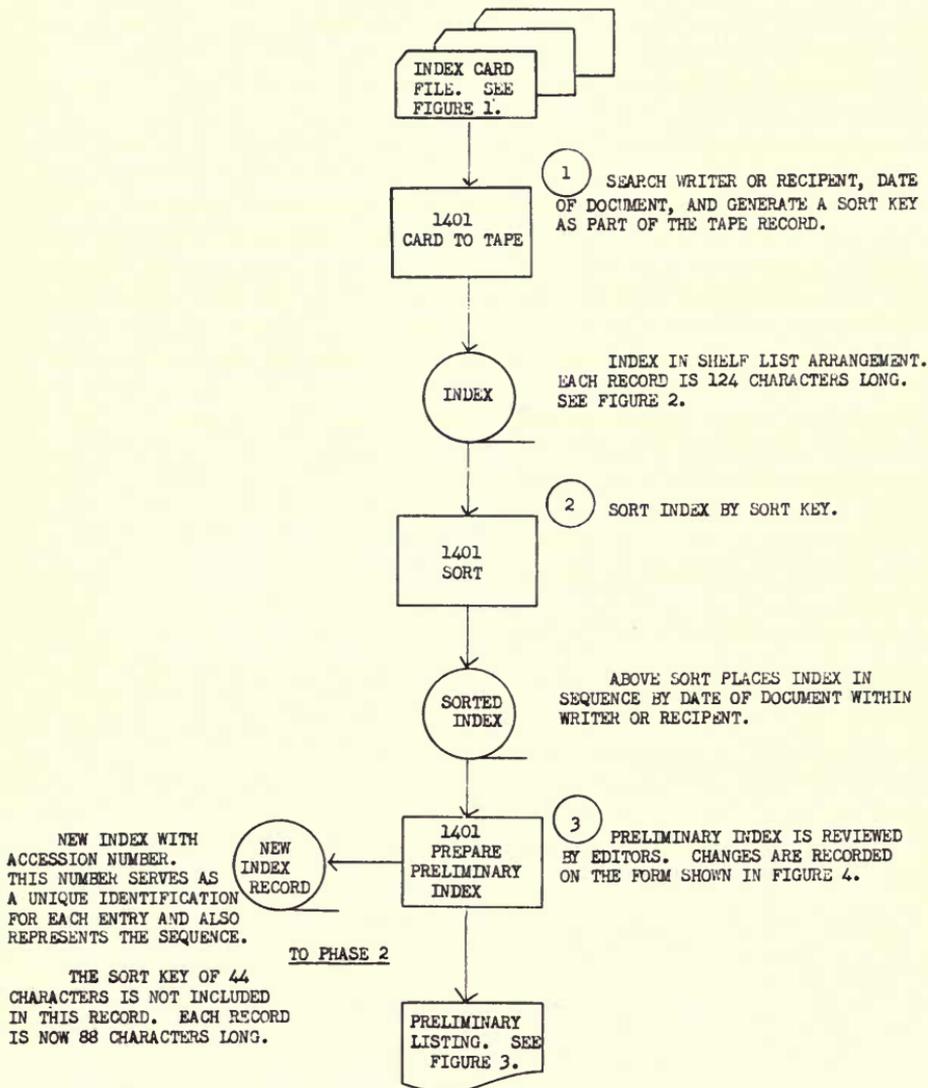
A limitation of computer sorting that should not affect the outcome is the number of characters that can be sorted. Although there are no statistics on truncating names, experience indicates that a 50 character sort key would properly sort most entries. This means that abbreviations or numbers could be used beyond the first 50 characters without affecting the result of the sort. The maximum number of characters the IBM 1401 computer can sort is 99, but it is desirable from a data processing point of view to keep the sort key to a minimum.

The computer file maintenance procedure obviously is superior to a unit record process. It permits the editors to work entirely from a listing whereas the unit record procedure; required the editors to locate physically the card on the listing, make the change, and then re-file the card. The development of the change report allowed the editors to restrict their reviews to changes only rather than re-viewing another complete listing after the changes had been made.

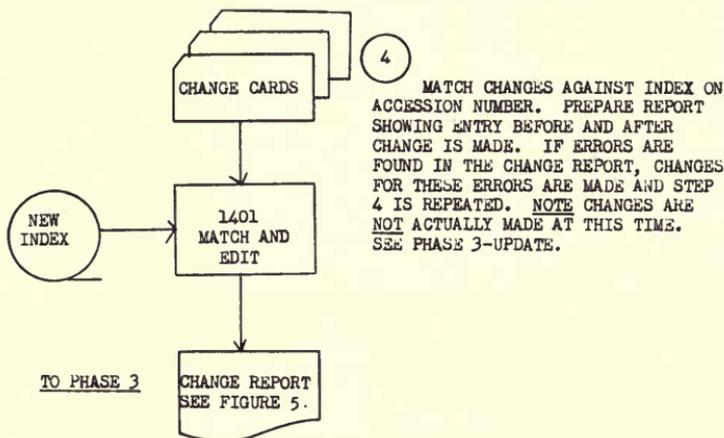
There are no statistics developed to indicate how much time is saved with this updating procedure; and although it is not as dramatic as the sorting technique, it will eventually save countless hours to editors dealing with hundreds to thousands of entries, particularly after the editors become better acquainted with the process.

Appendix I

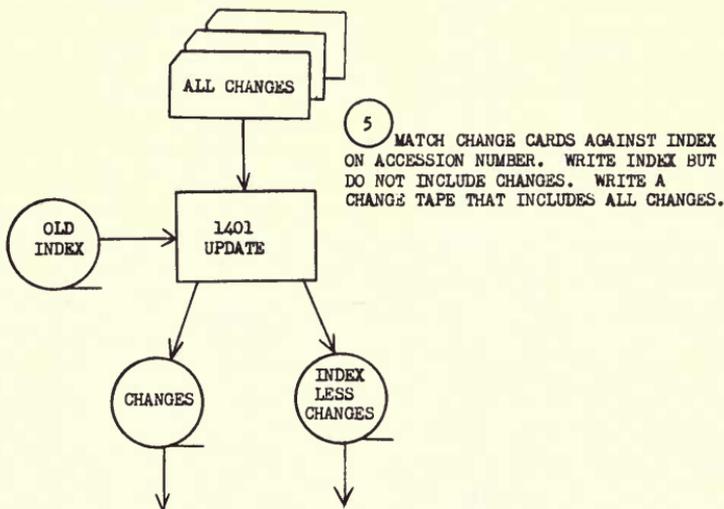
PHASE 1—CREATE INDEX ON MAGNETIC TAPE



PHASE 2—EDIT AND CHANGE REPORT



PHASE 3—UPDATE INDEX



TO PHASE 4

SORT KEY GENERATED BY COMPUTER		CARD IMAGE	
WRITER OR RECIPIENT	DATE	WRITER OR RECIPIENT	DATE
MABE D E	19120916	27 MABE D E FR WW	1912 SE 16
MACCCOLEY J	191209 6	27 MCCOLEY J FR WW	1912 SE 6
MACDUGALL R V	19120916	27 MACDUGALL R V FR WW	1912 SE 16
MACINTYRE J	19120916	27 MCINTYRE J FR WW	1912 SE 16
MADISON C W	19120916	27 MADISON C W FR WW	1912 SE 16
MADISON C W	19121099	27 MADISON C W	1912 DC-DE
DBEAR A C	19120916	27 DBEAR A C FR WW	1912 SE 16
DBRYAN G S	19120916	27 D'BRYAN G S FR WW	1912 SE 16
DBRYAN G S	919120114	27 D'BRYAN MRS G S TO WW	1912 JA 14
OLEARY J	19120916	27 O'LEARY J FR WW	1912 SE 16
OWEN W A	19120916	27 OWEN W A FR WW	1912 SE 16
PARSONS B C	00000001	27 PARSONS B C	SEE
SCOTT C R	00000001	27 SCOTT C R	SEE
WALEN J A	18901231	27 WALEN J A TO WW	1890 DE 31
WALEN J A	18901280	27 WALEN J A TO WW	1890 DE
WALEN J A	18908888	27 WALEN J A TO WW	1890
WALEN J A	18909988	27 WALEN J A TO WW	1890-91
WALEN J A	99999999	27 WALEN J A TO WW	NO
WALEN J A	99999999	27 WALEN J A TO WW	*ND1890
WALEN J A	919120916	27 WALEN MRS J A FR MRS L M RYAN	1912 SE 16

Figure 2
Sample Magnetic Tape Records

03812960	22 MCVEIGH M R TO DSL	1888 AP 20 3 2	1
03812640	22 MACVEIGH J TO GC	1886 AP 1 3 4	1
03812720	22 MACVEIGH J FR DSL	1886 DC 11 4 1	1
03812800	22 MACVEIGH J TO GC	1894 ND 23 3 7WITH ADVERTISEMENT	1
03812880	22 MACVEIGH JAMES TO GC	1886 SE 23 2 8WITH CIRCULAR	1
03812960	22 MCVEIGH M FR DSL	1888 ND 20 4 2V27	1
03813040	22 MCVEIGH N TU GC	1888 HY 28 3 2	1
03813120	22 MCVEIGH W R TO GC	1888 MR 23 3 2	1
03813200	22 MCVEY CHARLES S TO GC	1885 OC 3 2 3	1
03813280	22 MCVEY S TO GC	1886 ND 19 3 4	1
03813360	22 MCVEIKER J H TO DSL	1887 SE 27 2 1TELEGRAM	2
03813440	22 MCVEIR MRS R H TO GC	1886 SE 22 2 4	1
03813520	22 MCWHIRTER A J TO GC	1887 MR 1 2 3	1
03813600	22 MCWHIRTER E T TO GC	1894 MR 29 2 1	1
03813680	22 MCWHODD E JR FR DLP	1885 SE 17 4 2	1
03813760	22 MCWILLIAMS C P TO DSL	1887 ND 10 2 2	1
03813840	22 MCWILLIAMS J FR DSL	1885 AP 24 4 2	1
03813920	22 MCWILLIAMS J TO DSL	1887 AP 6 2 2TELEGRAM	1
03814000	22 MCWILLIAMS WILLIAM TO GC	1885 SE 10 2 3	1
03814080	22 MACY F J TO GC	1887 JL 4 3 4	1
03814160	22 MACY MRS E S FR DSL	1887 JL 21 4 2	1
03814240	22 MACY S J TO GC	1888 HY 21 2 2	1
03814320	22 MACY MRS S J TO GC	1904 JA 14 3 2	1
03814400	22 MCZANE A TO F WHARTON	1887 FE 19 3 4	1
03814480	22 MADDEN D TO GC	1895 ND 25 2 9	1
03814560	22 MADDEN G H TO J BLACK	1894 JA 18 2 3RESOLUTION	3
03814640	22 MADDEN H A TO GC	1889 JA 25 3 3	1
03814720	22 MADDEN M A FR DSL	1889 JA 29 4 3	1
03814800	22 MADDEN J TO GC	1887 JE 7 3 2	1
03814880	22 MADDEN T ET AL TO GC	1888 AG 24 3 1TELEGRAM	1
03814960	22 MADDOX L L TO F F CLEVELAND	1892 ND 15 3 3	1
03815040	22 MADDOCKS H F FR DSL	1887 JA 4 4 2V12	1
03815120	22 MADDOX L TO GC	1880 DC 21 3 3WITH CLIPPING	1
03815200	22 MADDOX H C FR DSL	1886 JL 26 4 2	1
03815280	22 MADDOX S W TO DSL	1888 JC 11 2 2	1
03815360	22 MADDOX T W TO GC	1892 ND 9 3 1TELEGRAM	1
03815440	22 MADDOXS S W TO GC	1888 JE 7 3 1	1
03815520	22 MADIGAN A W TO GC	1886 DE 11 4 1TELEGRAM-V30	1
03815600	22 MADIGAN J TU GC	1887 MR 1 4 1TELEGRAM-V30	2
03815680	22 MADIGAN W T TO DSL	1886 DE 4 2 4	1
03815760	22 MADIGAN W T TO DSL	1888 AG 21 2 3	1
03815840	22 MADISON A Z FR DLP	1885 AP 30 4 1	1
03815920	22 MADISON A Z TO GC	1888 DC 29 2 4	1
03816000	22 MADISON GDFEE POT CO TO GC	1886 DE 8 2 3WITH ADVERTISEMENT	1

Figure 3
Preliminary Listing with Accession Number

PRESIDENTIAL PAPERS CHANGE SHEET Non Case File Collections LC TT-57a (1/69)	Accession No FROM	Accession No TO	1	2	WRITER OR RECIPIENT	DATE	No of Ser	No of Pages
	Accession No FROM	Accession No TO	ADDITIONAL INFORMATION			Cont if Cross Reference	Card Ct	CHANGE CODE 1 Add 2 Delete 3 Change

Fig. 4—Change Sheet

PRESIDENTIAL PAPERS EDIT REPORT NON CASE FILE							PAGE NO. 9	
TYPE CHANGE NUMBER	ACCESSION NO.	PRES. NO.	NAME OF WRITER OR RECIPIENT	DATE OF DOCUMENT	NO. OF SERIES	NO. OF PAGES	ADDITIONAL INFORMATION	CROSS REFERENCE
ADDS	D1078570		HILL	SEE			RADISON J	YES
DELETE	D1082360	4	*WILLIAMSON H TO JMI	*1790	1	2	LIST	NO
CHANGE TAPE	D1082720	4	WILLIAMSON J FR W TEMPLE	1674 NO 4	2	4	MIRT W 1837 AC 30	NO
CHANGE TAPE	D1089360	4	WISTAR C JR TO*JMI	1811 AP 13	1	2		NO
CHANGE TAPE	D1095600	4	YATES J R TO*JMI	1816 JA 24	1	1	DUNGLISON 1830 NR 23	NO
CHANGE TAPE	D1095600	4	YATES J R TO*JMI	1916 JA 24	1	1	DUNGLISON 1830 NR 23	NO

Figure 5
Edit and Change Report

1	*MACAULAY GRAHAM CATHERINE FR GW	1787 NO 16	2	2	V14-P199	1
1	*MACAULAY GRAHAM CATHERINE TO*GW	*1789 OC 30	4	4		1
1	MACAULAY GRAHAM CATHERINE FR GW	1790 JA 9	2	4	V17-P289	1
1	*MACAULAY GRAHAM CATHERINE TO*GW	1790 JE	4	8		1
1	*MACAULAY GRAHAM CATHERINE TO*GW	1791 MR 1	4	4		1
1	*MACAULAY GRAHAM CATHERINE FR GW	1791 FE 10	2	1	V17-P164	1
1	*MACAULAY GRAHAM CATHERINE FR GW	1791 JL 19	2	1	V17-P181	1
1	MACAULAY ZACHARY TO*W W GRENVILLE	1794 NO 28	4	6	MEMORIAL	1
1	MACAULEY AULEY TO*GW	1791 SE 6	4	4		1
1	MACAULEY AULEY FR*TOBIAS LEAR	1791 NO 14	2	2	V18-P22	2
1	MACAY SPRUCE	SEE			SALISBURY NC 1791 MY 30	
1	MCCABE ALEXANDER TO GW	1786 JE 26	4	4		1
1	MCCABE HENRY TO GW	1775 MR 31	4	2		1
1	MCCALL GEORGE TO*GW	1783 JL 21	4	4		1
1	*MCCALLISTER ARCHIBALD TO PA COUNCIL	1779 MY 4	4	2	EXTR-VERSO-GALBRETH MY5	3
1	MCCALLISTER ARCHIBALD FR GW	1782 JA 1	4	2	CERTIFICATE OF SERVICE	1
1	MCCALLMONT JAMES TO GW	1791 OC 8	7	3	V19-P8	1
1	MCCALLMONT JAMES TO GW	1792 FE 25	7	6	V19-P9	1
1	MCCALLUM KENNETH TO*JAMES GORDON	1782 MY 8	4	2	HAZEN MY 27	1
1	MCCALMAD JEAN FR*JOHN MCALISTER	1782 FE 22	6C	1	V2-P36	2
1	*MCCALVEY WILLIAM ET AL TO*I PUTNAM	1777 FE 7	4	2		1
1	*MCCARNICK GEORGE TO GW	1786 OC 31	4	4	TWO SAME DATE	1
1	*MCCARNICK GEORGE FR GW	1786 NO 27	2	3	V13-P247	1
1	MCCARNY FRANCIS-BRITISH STRENGTH	1778 SE 29	4	2	DEPOSITION	1
1	MCCARTHY EUGENE	SEE			JONES JOHN PAUL 1785 AP 13	
1	MCCARTHY MARTAIGUE JEAN BAPTISTE DE	SEE			MACARTY-MARTEIGUE J B DE	
1	MCCARTY DANIEL TO GW	1769 DE 6	4	3		1
1	MCCARTY DANIEL TO*GW	1784 FE 22	4	2	SPRAGUE TRANSCRIPT	1
1	MCCARTY DANIEL FR GW	1784 FE 22	2	1	V11-P130	1
1	MCCARTY DANIEL TO GW	1797 NO 2	4	3		1
1	MCCARTY DANIEL TO GW	1797 NO 6	4	2		1
1	MCCARTY DANIEL TO GW	1798 SE 19	4	4		1
1	*MCCARTY DENNIS FR GW	1755 NO 22	2	2	V1-P288	1
1	*MCCARTY DENNIS TO*GW	1755 DE 30	5	1	V8-P18 RECEIPT	1
1	*MCCARTY DENNIS FR*GEORGE MERCER	1756 JA 30	2	1	V3-P52	2
1	*MCCARTY DENNIS TO*GW	1756 MY 3	5	1	V8-P23 RECEIPT	1
1	MCCARTY DENNIS FR GW	1756 MY 10	2	1	V3-P171	1
1	MCCARTY DENNIS TO*GW	1756 JE 2	5	1	V8-P29 RECEIPT	1
1	*MCCARTY DENNIS TO GW	1756 NO 25	5	1	V8-P40 RECEIPT	1
1	MCCARTY DENIS	SEE			MCCARTY DENNIS	
1	*MCCARTY PATRICK TO*GW	1797 AP 26	4	3		1
1	MCCASKEY --- BRITISH SHIPS & TROOPS	1780 JE 1	4	2	INTELLIGENCE REPORT	1
1	*MCCASKEY ALEXANDER TO*GW	1789 JL 4	7	2	V19-P16	1
1	*MCCASKEY ALEXANDER TO*GW	1789 JL 8	7	2	V19-P17	1
1	MCCASKEY ALEXANDER TO GW	1793 AG 19	7	5	V19-P18 WITH RECOM	1
1	*MCCASKEY ALEXANDER TO GW	1793 AG 20	7	2	V19-P20	1
1	MCCLANACHAN ALEXANDER FR GW	1777 AP 30	3B	1	V3-P111	1
1	MCCLANACHAN ALEXANDER FR GW	1778 MR 26	3B	2	V5-P184	1
1	*MCCLANACHAN ALEXANDER FR GW	1778 MR 26	4	2		1

Figure 6
Used for Photo-offset