

Cartographic and Related Records: What Are They, How Have They Been Produced and What Are Problems of Their Admin- istration?¹

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WHEN the Babylonian owner of a tract of land in about 2500 B. C. measured and then inscribed on a clay tablet the extent of his domain, its shape, size, and use, he made a record, a permanent cartographic record. It was accomplished in order to record the status and extent of ownership of a mappable portion of the earth's surface at a given moment in history. From that day to now this record has had historical, as indeed it may also be said to have had legal and administrative value, because it is a graphic record of title to land and its mode of ownership. That this particular form of cartographic record was preserved to posterity is an accident, as indeed so has it largely been an accident or fortunate happenstance that those records created prior to modern records management have been preserved. This record was created during the beginnings of cartography; subsequent records of exploration, settlement and use of the terraqueous surface of the earth

¹ The views expressed in this paper cannot be said to be the official views of the National Archives and Records Service, although they are largely the product of some twelve years experience with the cartographic and related records problem of the Federal Government generally, and of visits to state and local archives, records, and library units in the United States and Canada, as well as archives and public records offices in India, China, and Japan. Miss Laura E. Kelsay of the Cartographic Records Branch has contributed materially to this paper, both in research and in the parts having to do with arrangement and description. The writer is particularly indebted to W. L. G. Joerg, Chief, Cartographic Records Branch, for frequent opportunities to "ventilate" ideas, and for many helpful suggestions. Similarly helpful have been discussions with O. W. Holmes, Director, Natural Resources Records Division, J. Fred Winkler and Miss Josephine W. Kelley of the Cartographic Records Branch, and W. Neil Franklin, Chief, General Reference Branch, all of the National Archives and Records Service.

and knowledge of the atmosphere likewise have found expression in the cartographic medium.

This is not the place to discuss the history of map-making and map-using, for this has been accomplished with admirable success by several recent writers.² A few remarks, however, with respect to the growth and development of cartography in the United States may serve to point up the complex problems involved.

Cartographic and related records officially created in the United States during the colonial period were closely related to land ownership and use by the colonists or settlers on the one hand and the Mother Country on the other. Then, too, maps of the terrain were made for the use of or in cooperation with military activities. The colonial (later state) and minor civil division boundaries were surveyed and maps were made, fortified sites were measured and mapped, a few harbors were sounded and mapped, and tracts of private property were surveyed and mapped to show the metes and bounds and even the details of the terrain, including the location of the settlers houses, the roads, and the land-use patterns.³ Often several manuscript copies were made and, in most instances, one or perhaps all copies of the resulting surveys and maps were sent to the Mother Country as records.⁴ These maps were compiled from a very few sources. Therefore the records problem was relatively simple. Few of these "permanent records" remain, and many of them are fugitive records.⁵

² A few of the excellent sources are the following: Lloyd A. Brown, *The Story of Maps*. Boston, 1949. 397 pp.; Walter Thiele, *Official Map Publications*. Chicago, 1938. 356 pp.; Raye R. Platt, "Milestones in American Cartography," *Proceedings of the Eighth American Scientific Congress*, 9:55-63 (1943); Erwin Raisz, "Outline and History of American Cartography," *Isis*, 26:373-391 (1937); George M. Wheeler, "III. Government Land and Marine Surveys. Origin, Organization, Functions, History, and Progress." *Report Upon the Third International Geographical Congress . . . Venice, Italy, 1881*. Washington, 1885. See pp. 76-569; and Herbert G. Fordham, *Maps, Their History, Characteristics and Uses*. Cambridge, 1927. 83 pp.

³ Recently historical societies, institutions and individuals having collections of such maps and related items have prepared and published descriptive lists covering them. A few of these are as follows: Randolph G. Adams, *British Headquarters Maps and Sketches Used by Sir Henry Clinton while in Command of the British Forces Operating in North America*. Ann Arbor, 1928. 144 pp.; Newberry Library, *List of Manuscript Maps in the Edward E. Ayer Collection*. Chicago, 1927. 101 pp.; Justin Winsor, *Narrative and Critical History of America*. Boston and New York, 1884-89. 8 vols.; and Lloyd H. Brown, "Manuscript Maps in the W. L. Clements Library," *The American Neptune*, 1:1-8 (1941).

⁴ An example of sources listing these is: Waldo G. Leland, "Classified List of Manuscript Maps Relating to North America and the West Indies (in Bibliothèque Nationale, Département des imprimés, cartes et plans)," *Guide to Materials for American History in the Libraries and Archives of Paris*. Washington, 1932. pp. 221-237.

⁵ One of the best sources on this subject is: Randolph G. Adams, "The Character and Extent of Fugitive Archival Material," *The American Archivist*, 2:85-96 (1939).

Since 1783, the United States has mapped and then exploited each successive acquisition of the Public Domain.⁶ Mapping has been a kind of inventory. The exploitation that has followed and continued to this day has taken on an infinite variety of forms. Among the most significant, of course, have been settlement, rights-of-way across the land, rights to the extractive resources, rights to exchange, increase, or decrease the holdings of property, and, significantly, the rights of the Federal, State and local Governments to require an accounting as well as to maintain an accounting (a record) of the manner of land-use and returns therefrom. Through the years the patterns of these exploitations have become more complex. The Federal and State Governments, particularly during the present century, have greatly increased their services to the people in such fields as soil conservation, forest resources, highways and roads, water resources, civic planning, agricultural readjustment, censuses, mineral resources, civil works (such as river and harbor improvements), reclamation, and even resettlement of segments of the population. In each instance this has required extensive mapping programs, many of the maps created being but temporary records, *but nevertheless records*. Then, too, the State and local Governments have been required to create and maintain cartographic and related records on a great many subjects affecting property, its use and ownership, as well as local planning.⁷ Such records now exist in surprisingly large quantities, plaguing the conscience as well as patience of the more enterprising and alert custodial personnel and frustrating a public that demands service, but sometimes finds a "well-mismanaged" mass of records that often has grown beyond its usefulness.

The volume and diverse nature of cartographic and related records produced during the past twenty years almost defies imagination. This is, of course, not so true in smaller administrative units in the United States as it is in the Federal and State Governments. The rapid progress made in a more understanding and intensive use of our physical landscape, through the development of power proj-

⁶ See sources in footnote 13.

⁷ A few of the rather large number of sources are: J. Walter Ackerman, "Tax Maps and Their Value to a Community." *Proceedings of the Seventh Conference of local Assessors and Fourteenth State Tax Commission*. pp. 25-29. New York, 1930; Edward M. Deering, "Preparing Permanent Assessment Maps." *American City*. June 1921, pp. 595-597; Vernon W. Flynt, "Tax Mapping a City and County." *Popular Government*, October 1936. pp. 3, 6; Alden Wells, "Property Maps—Their Preparation, Use and Cost," *American City*, September, 1928, pp. 108-110; and "Construction and Use of Tax Maps." *Assessment Practice Series* No. 1, pp. 1-51. Chicago, 1935.

ects, the country-wide survey and appraisal of land-use and of crop production, reforestation, the growth, as well as complex pattern, of urban and rural planning, the detailed and systematic appraisal of property, and numerous other activities, has required the creation and maintenance of a most intricate and exact record — the map and its accessorial data.

Accumulating, often as heterogeneous masses of records of numerous different sizes and shapes, they have long taxed the patience of archivists and frequently have become fugitive records. In libraries, records depositories and archives maps have sometimes been described as step-children in the family of records. This situation has grown out of the lack of a consistent and clear-cut policy with respect to the identification and description of records. Maps and similar records have become step-children primarily because they are often large, are folded, are awkward to handle, or just don't match the standard patterns cut for textual records.⁸ Consequently, in the past, many records officers and "keepers of the records" have spoken of "those outsize"⁹ or oversize or special items and forthwith have relegated them to oblivion, that is, to attics, closets, tops of cases or cabinets, cardboard or metal tubes, in short, "out-of-order" and often not findable when urgently needed.¹⁰ The fallacy is, of course, very easy to fall into, for these records have been considered on the basis of their physical form rather than on the basis of their content, purpose, and origin. A careful, qualified records officer or archivist first treats all records in terms of their content and, only incidentally, in terms of their physical shape or form. Any records program that would do otherwise appears inconsistent and does grave injustice to the profession.

An examination of foreign as well as United States publications dealing with records and archives reveals little discussion and thinking on the subject of cartographic and related records.¹¹ Therefore

⁸ Clara Egli LeGear, *Maps: Their Care, Repair and Preservation in Libraries*. Washington, Library of Congress, 1949. 46 pp. See pp. vii-viii; Lloyd A. Brown, *Notes on the Care and Cataloguing of Old Maps*. Windham, Connecticut, 1941. 110 pp. See pp. 17-19; Albert H. Schneider, *Observations on Filing Real Estate Maps*. Arcadia, California, 1944. Reprinted in *Illinois Libraries*, 26:340-342 (1944).

⁹ Hilary Jenkinson, *A Manual of Archive Administration*. London, 1937. 256 pp. See pp. 6 and 54-55; Charles Johnson, *The Care and Management of Archives*. London, 1919. 47 pp. See p. 37.

¹⁰ Surveys of cartographic and related records of the Federal Government by the writer during the past twelve years have given ample evidence of these conditions.

¹¹ The following representative recent sources on archives and records reveal very little on the subject of cartographic records: Hilary Jenkinson, *op. cit.*; Pio Pecchiai, *Manuale Pratico per gli Archivisti*. Milano, 1928. 567 pp.; S. Muller, J. A. Feith, and R. Fruin, *Manual for the Arrangement and Description of Archives*. Translated from

it is to library literature that we must turn for helpful hints, although even this source is not adequate, because the librarian's functions and problems are essentially different.

Because the mappable earth's surface as well as its sub-surface are involved, maps have been made in considerable profusion, on many different scales, in many different shapes and sizes, and, significantly, for an infinite number of subjects expressed as content, it is obvious that many will have permanent or temporary legal, administrative, and historical or research value precisely as do textual, photographic, and other records. Though in their physical associations and purpose, cartographic and related records may be an inseparable part of textual, photographic, and other records, they very often are compiled, issued, and used as a separate individual unit or in a series. It is this latter category, the separable maps, that are the bogeys in records administration. As time moves on and "we live more thick," the volume and details of the cartographic records are bound to increase and the problems of their management will become more complex. The present is not too soon to initiate and develop a cartographic records program.

Cartographic and related records, therefore, ought to engage our immediate attention along three broad fronts: (1) What are they and how have they been created? (2) What are essential ingredients of a functioning cartographic and related records program in the creating or using agency and what is the role of the records officer with respect thereto? (3) What are essential ingredients of a functioning cartographic and related records program in Federal, State, and local archives, and what is the role of the geographer-archivist with respect thereto?

Because there is no prototype to serve as a basis for all records management and archival activities, the discussion in Parts I, II and III of this paper is supplemented by footnote references to sources that should be of assistance, often in a special way, to the records officer and archivist.

the Dutch by Arthur H. Leavitt. New York, 1940. 225 pp.; H. G. T. Christopher, *Palaeography and Archives*. London, 1938. 216 pp.; Eugenio Casanova, *Archivistica*. Siena, 1928. 533 pp.; Franz von Löher, *Archivlehre*. Paderborn, 1890. 490 pp. See pp. 360-362; Charles Johnson, *op. cit.*; Netherlands, Rijksarchief, *The General State Archives and Their Contents*. The Hague, 1932. See p. 9; and G. Herbert Fowler, "Maps." British Records Association, Technical Section, *Bulletin* 4, pp. 1-7 (January 1939). Two of the most interesting general sources are: Hans Beschoner, "Risse und Karten in den Archiven," pp. 20-35 of *Archivstudien zum Siebzigsten Geburtstage von Woldemar Lippert*. Dresden, 1931. 265 pp.; and R. D. Baart de la Faille, "De behandeling van kaarten in onze archieven," *Nederlandsch Archiefblad*, 39: 154-170 (1931-32). Additional references are included in sources listed in subsequent footnotes.

I. WHAT ARE CARTOGRAPHIC AND RELATED RECORDS?

Stated very simply, *cartographic records are maps*.¹² As such, they fall naturally into two principal groups: (1) Those that are an attempt by man, on the basis of field surveys, to delineate accurately on a plane surface through the medium of colors, symbols, conventional lines and the like corresponding selected elements of the physical and cultural landscapes in the precise geometric relationship in which they appear on the identical portion of the earth's surface. A topographic map and a hydrographic chart are excellent examples of such an attempt.¹³ (2) Those that are an attempt by man to delineate accurately on a plane surface selected subjects essentially of a descriptive, statistical and other than field survey origin. A map showing the distribution of linguistic types and a cartogram or diagrammatic map showing statistical data distributed by area are good examples of this type.¹⁴ In addition, cartographic records include globes, physiographic diagrams, geological maps, weather maps, third-dimensional forms (such as plaster, Vinylite, sponge-rubber, and similar relief models), and photo-maps.¹⁵

In preparing the cartographic record, man may use a few or a considerable number of different sources and techniques, depending upon the purpose for which the subject map is intended. In the instance of (1) above these sources may include detailed surveys of the land or water surface, a mathematically precise determination

¹² For definition and description see: Charles H. Deetz, "Cartography." Coast and Geodetic Survey, *Special Publication* No. 205. Washington, 1936. 82 pp. See pp. 1-2; Erwin Raisz, *General Cartography*. New York, 1948. 2nd edition. 354 pp. See Parts 2 and 3; Max Eckert, *Kartographie; ihre Aufgaben, und Bedeutung für die Kultur der Gegenwart*. Berlin, 1939. 437 pp.; David Greenwood, *Down to Earth: Mapping for Everybody*. New York, 1944. 262 pp.; Charles H. Deetz and Oscar S. Adams, "Elements of Map Projection with Applications to Map and Chart Construction." Coast and Geodetic Survey, *Special Publication* No. 68. Washington, 1938. 200 pp. See pp. 9-10; and Max Eckert, "On the Nature of Maps and Map Logic." Translated from the German by W. L. G. Joerg. American Geographical Society, *Bulletin*, 40: 341-351 (1908).

¹³ W. M. Beaman, "Topographic Instructions of the United States Geological Survey. E. Topographic Mapping." U. S. Geological Survey, *Bulletin* 788-E. Washington, 1928. 218 pp. See especially pp. 161-165; "Modern Mapping Methods," *The Military Engineer*, 41: 218-219 (May-June 1949); U. S. War Department, "Map Reproduction in the Field." War Department, *Technical Manual* (TM5-245). Washington, 1946. 161 pp.; U. S. War Department, "Advanced Map and Aerial Photograph Reading." *Field Manual* (FM21-26). Washington, 1944. 144 pp.; Arthur R. Hinks, *Maps and Survey*. Cambridge, 1942.

¹⁴ Erwin Raisz, *op. cit.*, Parts 6 and 7.

¹⁵ Erwin Raisz, *ibid.*, Part 7; Harrison P. Reed, "The Development of the Terrain Model in the War," *The Geographical Review*, 36: 632-652 (1946).

of the metes and bounds, and the development of an intricate net of accurately determined positions on the base by which to relate all of the plotted elements in their exact associations. In addition, a vast amount of research may be required to include such subjects as the kind of transport facilities available, the different kinds of power lines, the size and location of selected man-made features, the land-use patterns, soil types and their distribution, and a host of other mappable subjects. Once gathered, these data require analysis, evaluation, selection, and the development of a coordinated plan for their reduction to appropriate forms of presentation on the map base in order that the final published or produced map may be as accurate as possible. The sources thus brought together for use in the compilation of the map are *the related records*.

On the other hand, the map may be one prepared not on the basis of field surveys but rather, as in (2) above, exclusively as a product of office or library research. Such maps often are based on statistical or descriptive information and may be relatively simple, as for example an outline map of a state showing by dots (one dot for each silo) the location and distribution of silos. But the map may be quite complex, the base being an available topographic map with added information overprinted in colors showing types and location of industrial plants, kind and pattern of transport facilities, location and output of hydro-electric plants and producing mines. The sources thus brought together for use in the preparation of the maps are *also related records*.

One primary source used in the compilation of a modern, large-scale topographic map is the aerial photograph. This medium, when expressly produced or used (either as a single print or as a large mosaic) in the making of a map, becomes a source and, therefore, its record character must be appraised primarily on the basis of use and content and not on its physical nature, as is so often done. The aerial photograph and similar mediums when used as a source are *also related records*.¹⁶

Cartographic and related records respectively, therefore, comprise (1) the map *per se* and (2) the sources which were used in the making of that map. Where maps are produced in quantities, these activities are accomplished usually in an administratively self-contained, map-making establishment by personnel specially trained

¹⁶ Earl Church, *Elements of Aerial Photogrammetry*. Syracuse, New York, 1944. 95 pp.; "Modern Mapping Methods," *op. cit.*; U. S. War Department, "Advanced Map and Aerial Photograph Reading," *op. cit.*; Norman Carls, *How to Read Aerial Photographs for Census Work*. Washington, Bureau of Census. 1947. 44 pp.; American Society of Photogrammetry, *Manual of Photogrammetry*. New York, 1945. 841 pp.

in one or more of the many different activities involved.¹⁷ These activities represent the life history of a map as, indeed, that history is expressed in the content and accumulation of the records. The life history of a map has not always been so complex, however, for a survey of the history of map-making reveals that characteristic to have been of relatively recent origin. In simple form, however, the cartographic records problem has been with us as long as it has for textual records, for "the making of maps antedates the art of writing."¹⁸

II. ROLE OF THE RECORDS OFFICER IN THE MAP-CREATING AND MAP-USING AGENCY

The problem of primary importance is to liquidate as soon as possible all extraneous non-record and immediately disposable temporary cartographic and related record items and to provide a plan for the orderly retirement of all permanently valuable cartographic and related records to the appropriate agency.

Experience and time have proven the wisdom of appointing a qualified member of the staff of a map-creating and map-using agency to serve as records officer of that agency. It is immediately apparent that, as far as cartographic and related records are concerned, the person generally best qualified to judge as to their intrinsic value to the agency and to the Government is the individual professionally trained in the agency in which the records are created and used or one trained in the subject field.

The following are among the significant duties of the records officer:

1. The assembling of information on the history of the agency with respect to its origin, purpose, administration, records-creating and records-using functions, the evolution and use of techniques and processes in the preparation, compilation, and production of maps, the pattern of arrangement of its records, the development of finding aids to its records, and particularly, the records-keeping

¹⁷ An examination of the following sources will immediately reveal the complexity of the organization and high degree of specialization of some map-producing agencies: K. T. Adams, "Hydrographic Manual." U. S. Department of Commerce, *Special Publication* No. 143, Revised (1942) Edition. Washington, 1942. 940 pp.; R. O. Glover, "Chart Program of the Hydrographic Office [United States Navy]," *Pacific Marine Review*, May 1946. pp. 426-430, 453, and June 1946. pp. 52-53, 146, 148; "Arms and the Map. Military Mapping by the Army Map Service," *Print, A Quarterly Journal of the Graphic Arts*. Spring, 1946. pp. 1-16; W. E. Wrather, *Postwar Plan for the Topographic Mapping by the Geological Survey*. Washington, Map Information Office, U. S. Geological Survey. 1946. 7 pp.

¹⁸Erwin Raisz, *op. cit.*, p. 3.

procedures in relation to the ultimate disposition of the temporary and permanent records. On the basis of this information, the records officer can go on to proper administration of the records.¹⁹

2. Arranging the records with a view to adopting a pattern that will expedite their servicing and use and make possible, with a minimum of effort and expense, their proper ultimate disposition. Experience indicates that there are five general categories of cartographic and related records with respect to their disposition. An awareness of these is a prerequisite to effective arrangement. They are (1) the permanent record set of one copy of each edition or variant of each officially published or produced map and related items (precedent and intelligent planning for which there is ample evidence in the cartographic records of the Geological Survey, the Coast and Geodetic Survey, and the Hydrographic Office, each a Federal agency); (2) other permanent cartographic and related records, often including manuscript planetable sheets prepared in the field, survey field notes and notebooks, geodetic, triangulation, and similar computations and observations of a non-map nature, aerial photographs, job folders and similar items; (3) temporary records used in the compilation or preparation of the final drawings, including such items as the manuscript drawings for each color plate, glass plate negatives, film, overlay sheets, and similar records used in the reproduction and printing of the maps; (4) the administrative type of records such as job specifications, instructions, and correspondence, much of which is of a temporary record nature;²⁰ and (5) finding aids created in or acquired by the agency for use in arranging and servicing its records, many of which probably are permanent records.

Many patterns of arrangement and classification of maps are available.²¹ The records officer ought to adopt the simplest, most

¹⁹ An examination of the following sources will reveal some of the details and the different kinds of records created: K. T. Adams, *op. cit.*, pp. 1-807; Charles H. Deetz, *Cartography . . . op. cit.*, pp. 30-80; W. M. Beaman, *op. cit.*, pp. 165-378; U. S. General Land Office, *Manual of Instructions for the Survey of the Public Lands of the United States*, 1930 (reprinted 1934). Washington, 1934. 530 pp. See pp. 25-433; U. S. Coast and Geodetic Survey [Reprint of] *Annual Report, from Thirty-Sixth Annual Report of the Secretary of Commerce, 1948*. Washington, 1949. pp. 115-156. Also see "Report of Committee on Mapping Services of the Federal Government," *Second Report Science Advisory Board*. Washington, 1935. Pp. 129-306.

²⁰ An example of some of these is in H. M. Frye, "Topographic Instructions of the United States Geological Survey. A. Administration." *Bulletin* 768-A. Washington, 1926. 45 pp.

²¹ A few of the most recent sources may be noted, most of which include bibliographies to additional references: Clara Egli LeGear, *op. cit.*, pp. 35-46; American Geographical Society, *Manual for the Classification and Cataloguing of Maps in the So-*

SURVEY OF CARTOGRAPHIC

AGENCY			MAJOR SUBDIVISION		MINOR SUBDIVISION	
CITY AND STATE			BUILDING AND ROOM NUMBER		PERSON IN CHARGE	
ITEM NO.	LOCATION OF RECORDS		FILE / NOTATION	DESCRIPTION OF MAP OR GROUP OF MAPS AND RELATED RECORDS This should be brief but sufficient to characterize the map or group of maps and make clear their identity. This normally includes the subject, area and function of the map or group of maps and related records.		
	NUMBER					
(1)	CONTAINER (2)	FILE DRAWER (3)	(4)	(5)		

1/ If the entire group of maps and related items is identifiable by a number or symbol representing a particular file heading or by inclusive numbers or symbols representing an uninterrupted sequence of file headings, give the number or symbol or inclusive numbers or symbols. If non-record merely write in non-record.

2/ Use the following code symbols:
 M- Manuscript (hand-drawn)
 A- Annotated (combined hand-drawn and processed)
 P- Photo-processed
 PR- Printed or processed
 O- Others (Specify)

3/ Use:
 S- Single
 SS- Set
 B- Bound
 L- Loose
 A- Atlas
 O- Other

Downloaded from https://prime-pdf-watermark.prime-prod.pubfactory.com/ at 2025-07-01 via free access

AND RELATED RECORDS

		PREPARED BY				DATE PREPARED		PAGE ____ OF ____ PAGES		
		ROOM		CODE		EXTENSION		POTENTIAL RECORDS OF RG		
	INCLUSIVE DATES (6)	SCALE GIVEN OR COMPUTED (7)	RECORD		FINDING AIDS ^{4/} (10)	RECOMMENDED DISPOSITION ^{5/}				VOLUME IN FEET (15)
			KIND ^{2/} (8)	FORM ^{3/} (9)		RETENTION		DISPOSAL BY		
						TRANS. TO NATIONAL ARCHIVES (11)	PERIOD RETAIN IN AGENCY (12)	LIST (13)	SCHEDULE (14)	

the following code symbols:
e sheet
or series of sheets
d volume
e leaf binder, etc.
s
rs (*Specify*)

^{4/} Use the following code symbols:
C- Card catalog
M- Index map
L- Descriptive and similar list
O- Others (*Specify*)

^{5/} Use following:
For period to be retained in agency before transfer to National Archives give months or years. For others use X as applicable.

nearly self-explanatory pattern that can be recorded on finding mediums with a minimum of effort. It would be ideal, of course, if all permanent records could be arranged and the appropriate finding aids to them prepared according to a standard pattern. Thus, when they are transferred to the archives or records depository a minimum amount of time is required in servicing them and the archivist is not required to learn and keep in mind yet another system.

3. Developing a program for the optimum preservation, particularly of the permanent records, should be given serious consideration.²² Some maps are rolled in metal tubes, some are multi-folded and placed in correspondence file-drawers, some are in cramped vertical files, some are dissected and arranged in loose-leaf binders, and some, unfortunately, merely accumulate.²³ It is encouraging to note that there recently has been a marked trend toward flat-filing in large, shallow, horizontal metal drawers. In the instance of permanent cartographic records a standardization, insofar as the records would lend themselves to it, would be strong-

ciety's Collection. New York, 1947. 43 pp.; E. J. S. Parsons, *Manual of Map Classification and Cataloguing, Prepared for Use in the Directorate of Military Survey*, War Office. London, 1946. 439 pp., and index maps; Walter Thiele, "Classification, Cataloguing and Care of Maps," in his *Official Map Publications*, *op. cit.*, pp. 282-295; J. P. Terrell, *The Williams System of Classification, Cataloguing, Indexing, Filing and Care of Maps as Adopted for the General Staff Map Collection*. Washington (2nd Edition) 1930; S. W. Boggs and Dorothy C. Lewis, *Classification and Cataloguing of Maps and Atlases*. New York, 1945. 175 pp.; Lloyd A. Brown, *Notes on the Care & Cataloguing of Old Maps*. *Op. cit.*, pp. 28-82; and G. R. Crone, "The Cataloguing and Arrangement of Maps," *Library Association Record*, 4th Ser., 3:98-104 (March 1936).

²² Among the best recent sources, each of which includes references to additional sources, are the following: Clara Egli LeGear, *op. cit.*, pp. 12-23; Albert H. Schneider, *op. cit.*; Minnesota Historical Society, *The Care and Cataloguing of Manuscripts, as Practiced by the Minnesota Historical Society, Manuscript Division*. St. Paul, 1936. 65 pp. See especially pp. 52-61; Adelaide E. Minogue, "The Repair and Preservation of Records," *National Archives Bulletin* 5. Washington, 1943. 56 pp. (This is one of the best sources available. See especially pp. 36-41); S. Chakravorti, "A Review of the Lamination Process," *Indian Archives*, 1:304-312 (October 1947); and Kenneth J. Bertrand, *Instructions for Mounting Wall Maps*. Washington, Department of Geography, Catholic University of America. 1942. Mimeographed (copies are available for distribution until supply is exhausted).

²³ Excellent objective studies pointing up the several possibilities and with a discussion of each include the following: Clara Egli LeGear, *op. cit.*, pp. 24-29; Lloyd A. Brown, *op. cit.*, pp. 17-27; J. Fred Winkler, "Cartographic Record Filing in the National Archives," *The American Archivist*, 12:283-285 (July 1949); George D. Hubbard, "So the Map Collection Can Grow," *Surveying and Mapping*, 6:151-153 (1946); Heinrich Meisner, "Ueber Ordnung und Verwaltung von Kartensammlungen," *Zentralblatt für Bibliothekswesen*, 22:11-23 (1903); Raymond L. Nelson, "Map Storage and Distribution," *Military Engineer*, 35:465-469 (September 1943); William J. Van Schreeven, "Equipment Needs to be Considered in Constructing Post-War Archival Depositories," *National Archives Bulletin* No. 6, pp. 22-32. Washington, 1944.

ly advisable particularly as to equipment, manner of filing, kind, size and durability of folder or envelope used to enclose the records, and the file identification of each folder and map. This would facilitate and make much more economical their transfer to and preservation in the archives or records depository.

4. Surveying units of cartographic and related records is a fundamental obligation of a records officer. He will discover that there are certain basic repeating patterns of the content of such records that make possible, indeed invite, the preparation of a standard survey form. This can serve as a valuable record when completed, not alone to the records officer but to the agency and to the archivist, as well. Figure 1 is a reduced reproduction (full-scale copy is $10\frac{1}{2} \times 16$ inches) of such a form now in use in the Federal Government. The value of such a form is, that when accurately completed, it furnishes all of the essential ingredients required in subsequent paperwork with respect to the disposition of the records, and, in addition, it can serve the archivist as a guide for the arrangement and servicing of transferred records.

5. Disposing of the records accumulated in the map-creating and map-using agency normally means the orderly disposal of temporary records and the transfer of permanent records to the archives or records depository.²⁴ Whenever possible, the judgment required in accomplishing disposition should be the joint effort of the records officer trained in the agency and the archivist, who likewise should be a professionally trained geographer-cartographer. Such joint effort is required because the records officer is best qualified to evaluate the records in terms of the needs of the agency; the archivist is best qualified to judge the records with respect to their over-all legal, administrative, and research value. Furthermore, the unique position of the archivist, who normally has contact with all the government map-creating and map-using agencies, is in an ideal position to understand the relation of each particular group of records to the others. All too often, particularly in the Federal Government, an agency has disposed of records only to discover later that those records, especially field survey maps and notes, field computations and observations, and aerial photographs, could have

²⁴ The following excellent recent publications explain and describe this activity: Theodore R. Schellenberg, "Disposition of Federal Records." The National Archives, General Services Administration, *Publication* No. 50-3. Washington, 1949. 40 pp. (See especially pp. 3, 32); Philip C. Brooks, *Public Records Management*. Chicago, Public Administration Service, 1949. 19 pp.; and U. S. Department of the Army, "Records and Reports. Records Administration—Disposition of Records." *Special Regulations*, No. 345-920-1. Washington, 1949. 286 pp.

served the needs of other agencies and have saved the Government much in time, money and personnel.

The disposal forms used for textual records are equally useful for cartographic and related records. Description of cartographic records on these forms should be sufficiently detailed, however, to identify the records, and should not be restricted to the words "Maps and Charts," as is so often the case.

6. Finding aids are the keys that unlock records and make them useful.²⁵ Development of standard finding aids to cartographic and related records would be ideal, particularly for permanent records transferred to the archives or records depository. The 3 x 5 inch card catalog appears to offer many advantages, although some large agencies have become special pleaders for the machine records (punch card) system. The 3 x 5 card and the machine record, if standardized for permanent cartographic and related records that cannot readily be recorded on index maps as units in a systematic series (such as the standard topographic, nautical, and aeronautical charts), when transferred with the records to the archives or records depository, would mesh with a pattern already established and would eliminate the many different sizes, shapes, and degrees of legibility of cards now in effect.²⁶

Thus, but one basic finding aid to the records in the archives or records depository would be necessary. If sufficient cards, in the instance of the 3 x 5 card catalog, were made available, a shelf list, an area catalog, and a subject catalog, with appropriate cross-references, could be maintained. A special unit of standard index maps covering appropriate groups of cartographic records would sometimes supplement the card catalog, and often expedite the servicing

²⁵ The following recent publications in this field are helpful and include additional sources of information: Walter Thiele, *op. cit.*, pp. 287-293; J. P. Terrell, *op. cit.*; S. W. Boggs and Dorothy C. Lewis, *op. cit.*; Lloyd A. Brown, *Notes*, pp. 37-82; E. J. S. Parsons, *op. cit.*, pp. 1-30; Martin P. Claussen and Herman R. Friis, *Descriptive Catalog of Maps Published by Congress, 1817-1843*. Washington, 1941. 104 pp. See pp. vii-xiii; American Geographical Society, *op. cit.*; Mary Murphy, "The Army Map Service Library—Map Cataloging." *Special Libraries*, 36: 157-159 (May-June 1945).

²⁶ The wide range in size, shape and content of the cards generally available for records in the agency is indeed baffling to the archivist. Some agencies may use 3 x 5 inch cards, others 5 x 8, or 3 x 8, or 1½ x 3, or 8 x 10½ sheets as cards in their catalog. He notes that many of the older records are findable only after an item by item search of accession lists or ledger books. Some agencies record a bountiful fund of information on the card, others may merely record the subject or area and the file notation, or have devised a code to repeating patterns of content, such as scale, subject, and area which, though space-saving on the card, is baffling to the searcher. The archivist accessioning such a maze of finding aids can not but conclude that these items may include "findings" but are definitely not "aids." He will often pray for standardization and a centralized catalog.

of those records. Standardization of finding aids requires a great deal of careful planning and then positive action. To recent date, it has been mainly lost motion.

Very few map-making and map-using agencies, either Federal or State, have yet appointed trained records officers. More often than not, records management goes by default.

III. ROLE OF THE GEOGRAPHER-ARCHIVIST IN THE ARCHIVES AND RECORDS DEPOSITORY

Within the Federal, State, and local Government agencies, as has been pointed out, are units, some large and some small, creating and using a particular kind of medium of expression, the map and its accessorial data, the preparation and use of which have been in response to the creative abilities of the cartographer, the topographic and cadastral engineer, and the geographer. When records thus created and used achieve a non-current status and are retired to an archives or records depository they do not accordingly lose their value or content. Rather, by the decision to retain them permanently, these qualities are enhanced. As group of permanent records is added to group, the diversity of the content as well as the complementary qualities of the accumulated mass of permanent records become greater. It logically follows that these records, representing the quintessential product of the individual cartographic units of the Government, should, whenever possible, demand the continuous administrative and professional attention of a qualified geographer. This has long been recognized, though seldom borne out, partly because of the dearth of qualified personnel. This need of specialization in the field of archival administration has been recognized, especially in the United States and France.²⁷

²⁷ The Division of Maps and Charts (now the Cartographic Records Branch) in the National Archives was "given separate entity as a Division [in 1936] because the special scientific problems involved call for supervision by an expert geographer and cartographer. This separate entity is in accordance with precedent in other Government establishments. . . . The functions of the Division are to furnish the Archivist with expert advice relative to the accessioning of maps and charts . . . and to furnish service and give scientific aid and advice to Government departments and officials and to others who desire to use the collection." *First Annual Report of the Archivist of the United States, 1934-1935*. Washington, 1936. 60 pp. See pp. 16-17. It is interesting to note in the *Report of the Advisory Committee* [appointed by President Hoover] *on the National Archives Building, 1930*, that "the map collection of the Government in charge of the Geographer, is very extensive and . . . requires special treatment both as to shelving and as to reference service. Map files must be segregated from other files in the stacks and should be adjacent to the geographic section of the general administration . . ." *Ibid.*, p. 56.

W. L. G. Joerg has contributed the following pertinent information: "In France the outstanding members of the profession have been on the staff of the Bibliothèque

Obviously, the volume of cartographic and related records, except at the national, State, and the larger municipal levels, may not be such that a full-time employee is required, although even part-time employees ought to acquire professional training in the fields of cartography and geography. Because cartographic and related records have been adjudged permanent does not in one whit alter their content characteristics and the nature of their interpretation ten, twenty or a hundred years later. The geographer-cartographer, or as he is most aptly termed, the geographer-archivist, still is required.²⁸

Let us briefly examine a few of the responsibilities of the geographer-archivist and the nature of the physical environment of the cartographic records unit in the archives or records depository.

1. The elements of the physical environment that require the careful attention of the geographer-archivist are space, lighting, equipment, close proximity of the unit's office and search room to the stacks (as nearly centralized in relation to the stacks as possible), adequate and appropriate search room and work room facilities, and an air-conditioned or a well-ventilated stack area. A scaled plan of the entire area, showing the kind and location of all equipment, and particularly, through the medium of suitable colors and symbols on the plan, the precise location and administrative identity of the permanent records on deposit will prove useful. Most of these subjects have been discussed in recent publications that point up important elements of each.²⁹ Experience in the Carto-

Nationale rather than of the Archives Nationales (now Archives de France), in view of the fact that in the latter agency much of the emphasis is on medieval documents, and archival training, given at the celebrated École des Chartes in Paris, leads to the degree of *archiviste paléographe*. At the Bibliothèque Nationale, whose holdings include much material of a character similar to the records in the National Archives of the United States, the map division of the Section des Cartes et Plans was long under the direction of the well-known archivist and historical geographer, Charles de la Roncière (1870-c.1947) and his junior associate and professional successor, Albert Isnard." (February 1950).

²⁸ On the various aspects of modern geography and the character of this work done by the specialists in its various fields, including historical geography, see Richard Hartshorne, "The Nature of Geography. A Critical Survey of Current Thought in Light of the Past," *Annals of the Association of American Geographers*, 29:171-658 (September 1939).

²⁹ Helpful suggestions may be found in: Clara Egli LeGear, *op. cit.*, pp. 24-34; Lloyd A. Brown, *Notes*, pp. 17-36; Erwin Raisz, *General Cartography*, pp. 321-324; Edward B. Espenshade, Jr., "Building a Collection of Maps," *American Library Association, Bulletin*, 30: 206-215 (1936); Alfred H. Holway and Dorothea Jameson, *Good Lighting for People at Work in Reading Rooms and Offices*. Boston, Division of Research, Graduate School of Business Administration, Harvard University, 1947. 43 pp.; Agnes Whitmarsh, "Maps and Photographs." *Library Buildings for Library Service*. Chicago, 1947. Pp. 31 and 78-80. See also footnotes 2, 21, 22, and 23.

graphic Records Branch of the National Archives of the United States has indicated that adequate space, standard size metal map cases (consisting of four five-drawer units) and the best fluorescent lighting, all in an approved, air-conditioned stack area, are very significant and go far in making the environment comfortable as well as economical to operate.³⁰ The geographer-archivist will discover the need of a few of the instruments of the cartographer, such as the drafting board, T-squares, triangles, colored pencils and, especially, a lettering set, such as the Leroy or the Wrico, which can be used to advantage in lettering labels for drawers and folders and in the preparation of index maps.

2. One of the primary responsibilities of the geographer-archivist is the development of a functional and economical pattern of arrangement. This is in reality two-fold. One is arrangement of the groups of records within the available stack area. Experience in the Cartographic Records Branch of the National Archives of the United States emphasizes the value of careful planning in this regard. On the basis of a survey of the potential permanent cartographic and related records now in the agencies of the Government, it has been possible to assign a block of map cases to the records of each cartographic agency. Thus, some 1,400 map-case drawers, one half of the number in one large stack area, are assigned to house the permanent cartographic records of the Department of Commerce, continuous series of drawers within this block being tentatively assigned to receive the records of each of the separate cartographic units within that Department. In this way, records of an agency are in one block, and their management, servicing, and use can be undertaken under optimum conditions.

The second aspect of arrangement has to do with each individual unit of cartographic records. It would be ideal, of course, if all permanent records could be arranged according to a standard pattern in the creating agency and that each record could bear the appropriate descriptive file notation or stamp of the agency. The individual records then could be added to the appropriate series as prescribed or, if they represent a new series, could be added to an administratively related group of records. If the records lack arrangement, it immediately becomes the responsibility of the geographer-archivist to develop the most acceptable pattern.³¹

3. Preservation of permanent cartographic and related records has been undertaken either with feeling and emotion or with logic

³⁰ J. Fred Winkler, *op. cit.*

³¹ See footnotes 21, 22, and 23.

and cold realism. There are those who would not in any way alter the physical character of a record, and would leave it as it came to the depository, multifolded, rolled, or assembled within heavy buckram-covered plywood boards. Obviously, this complicates and makes uneconomical the maintenance of records. Others would consider all records preservation in terms of one pattern, and would insist on one principle of filing, rehabilitation, and removal of extraneous, volume-consuming items, such as binder covers, heavy cloth backing, and the like. Perhaps the ideal is somewhere between the two, but more to the side of the latter group. The geographer-archivist should always be aware, however, of the legal and administrative integrity of the record *per se*.

Flat filing of cartographic records in shallow, map case drawers has found almost universal acceptance.³² It is also generally agreed that, with very few exceptions, all cartographic records should be flattened and filed as sheets, those too large for the drawer being dissected and hinged or maintained as individual matching units.³³ The cartographic records as sheets should be arranged in sequence and put in paper folders. The number of maps to a folder depends on the fragility, size, and bulk of the records involved.³⁴

One of the most important aspects of preservation is identifying each individual record with a simple, self-explanatory file notation or stamp. Because the image of the map frequently occupies the entire space within its borders, it appears unwise to impress this stamp on the face of the map; rather it should go on the back. There is a distinct advantage in placing the stamp in the lower right corner of the back, since when the map sheet is placed face down in the drawer, the stamp appears in the right corner at the front.

³² Clara Egli LeGear, *op. cit.*, pp. 24-34 and pp. 38-42; Lloyd A. Brown, *Notes*. Pp. 17-27; R. D. Baart de la Faille, *op. cit.*; Edward Lynam, "Storage and Preservation of Maps." British Records Association, *Proceedings*, No. 4, pp. 32-34. London, 1939; Heinrich Meisner, *op. cit.*; William J. Van Schreeven, *op. cit.*; Walter Thiele, *op. cit.*, pp. 294-295; Elizabeth T. Platt, "The Map Department of the American Geographical Society." *Public Documents. Papers Presented at the 1936 Conference of the American Library Association, Chicago, 1936*. pp. 116-122; Walter W. Ristow, "The Library Map Collection." *Library Journal*, 67:552-555 (1942); Hilary Jenkinson, *op. cit.*, pp. 54-55; G. Herbert Fowler, "Maps." British Records Association, Technical Section, *Bulletin* 4, pp. 1-7. London, January 1937; Charles Johnson, *op. cit.*, p. 37; *The General State Archives . . .*, *op. cit.*, p. 9.

³³ Several excellent recent sources include: Adelaide Minogue, *op. cit.*; Clara Egli LeGear, *op. cit.*; pp. 12-24 (an excellent summary of the different processes now available) and pp. 42-46 (bibliography of sources), and footnote 32.

³⁴ Information on this subject is included in sources in footnotes 32 and 33. Special problems are posed with accessions of globes, atlases, terrain models and the like, though the volume of these in comparison to that of the maps is slight. Solutions to some of these problems may be found in sources in footnotes 32 and 33.

This facilitates searching and requires less wear of each map sheet, and prevents the loss or misfiling of records. Such a stamp, used in the Cartographic Records Branch of the National Archives of the United States, is shown below. It requires a minimum of writing, saves time, and is distinctive.

NATIONAL ARCHIVES OF THE UNITED STATES CARTOGRAPHIC RECORDS	
RECORDS OF THE WAR DEPARTMENT OFFICE OF THE CHIEF OF ENGINEERS Rec'd.: — Army Map Service	
RG-77	FILE:

4. Analysis and description or the preparation of finding aids to the cartographic and related records offer the geographer-archivist a real opportunity to be of service to Government and scholarship. Experience indicates that he will spend about as much time in this activity as in any other. As has been pointed out, a coordinated records management program should provide for a standardization of finding aids in the agencies. Normally, these will take the form of a card catalog and index maps. The geographer-archivist, on the other hand, is responsible for an ever-growing mass of records from many different sources. The degree of control of these records that he has is measured largely in terms of the completeness of his finding aids to them. If these are inadequate it is his obligation to remedy the situation. His service to Government and scholarship is to prepare and publish adequate finding aids to individual units of cartographic and related records as well as to the records by region and by subject. Two types of presentation are available: (a) The descriptive or textual; and (b) the graphic. Textual finding aids include inventories, descriptive lists, checklists, card catalogs, and series descriptions.³⁵ Graphic mediums, such as the index

³⁵ Several different kinds of these finding aids have recently been completed in the Cartographic Records Branch of the National Archives of the United States and are being processed for publication in the near future. These are Laura E. Kelsay, *In-*

maps so often used for published maps issued in series, are particularly helpful finding aids.³⁶

The geographer-archivist, who has arranged his stack area around the search room, will find the search room can serve as the nerve center for all of his finding aids, card catalogs, indexes, descriptive lists, inventories, and graphic aids. The index maps will be flat-filed in map-case drawers, the descriptive lists, inventories, and similar textual aids will be filed in binders on shelves and the cards in drawers of catalog cabinets.

5. Experience has indicated that the value of microphotography as applied to maps has yet to be proved. Indeed, microfilming of maps may be unwise and uneconomical because of the need for precision in dimensions, the impossibility of distinguishing in black and white the complex color patterns frequently shown on maps, and the very real difficulty of reading the microfilm image of a map on the ground glass of a reading machine. Furthermore, a searcher very often uses and compares several or more maps simultaneously.

6. The geographer-archivist will find useful a reference map and atlas collection that will assist him in determining place names, boundary line changes, and topographic features.³⁷ These are among the tools that assist him in servicing the records. Also of value will be a select library of books and publications on cartography, geography, photogrammetry, administrative history, map-making

Inventory of the Permanent Cartographic and Related Records of the National Resources Planning Board, 1933-1943 (approximately 50 pp.) and *Inventory of the Permanent Cartographic and Related Records of the Bureau of Indian Affairs, ca. 1800-1938* (approximately 75 pp.); Josephine W. Kelley, *Descriptive List of the Permanent Cartographic Records of the Division of Drainage and Water Control Research, Soil Conservation Service* (approximately 20 pp.). Additional sources include Martin P. Claussen and Herman R. Friis, *op. cit.*; Lloyd A. Brown, "Manuscript Maps in the William L. Clements Library," *The American Neptune*, 1:1-8 (1941); American Geographical Society, *Manual for the Classification and Cataloguing of Maps in the Society's Collection*. New York, 1947. 43 pp.; S. Muller, J. A. Feith, and R. Fruin, *op. cit.*, p. 143; Narcisse E. Dionne, "Inventaire chronologique des cartes, plans, atlas, relatifs à la Nouvelle France et à la Province de Québec, 1508-1908," *Royal Society of Canada, Proceedings and Transactions, 3d Series*, 2:1-124 (1908); and W. L. G. Joerg, "Archival Maps as Illustrated by those in the National Archives," *The American Archivist*, 4:188-193 (July 1941).

³⁶ Examples of published copies of this kind of medium are United States Geological Survey, *Index to Maps and Geologic Folios*. (By states and frequently revised and brought up to date); and U. S. Air Force, *Catalog [Index Maps] of Aeronautical Charts and Related Publications*. Washington, July 1948. 42 pp.

³⁷ Many of the maps required can be obtained from Government, State and local agencies. For maps of United States Government origin consult: *United States Government Publications, Monthly Catalog*, Issued by the Superintendent of Documents, Washington, D. C., and the individual map-issuing agencies; United States Superintendent of Documents, "Maps." *Price List* 53 (39th Edition, July 1948). 8 pp.

techniques, and the administration of records in the individual agencies with which he is concerned.³⁸

CONCLUSIONS

Cartographic and related materials, as current records in the creating or using agencies, are universally recognized as a distinct category of records, not because of their physical nature but rather because of their content and method of preparation. They often lose this distinction, however, when transferred to archives or records depositories, chiefly because records officers and archivists allow physical form rather than content and method of preparation to dominate their policies with respect to such records. This has given rise to an unwholesome attitude toward the archival profession on the part of some map-creating and map-using agencies.

Because their content characteristics, life history, and use differ from those of other records the problems of their management by the records officer and their administration and service by an archivist can best be solved respectively by the geographer-cartographer in the agency and the geographer-archivist in the archives or records depository.

To date a surprisingly few map-making and map-using agencies and archives and records depositories have initiated effective records management and records administration programs with respect to cartographic and related records.

Time is awasting, and with it the records!

³⁸ Consult references in footnote 37.