A Special Issue to Celebrate the 100th Anniversary of the New York Public Library's Map Division

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ALA Midwinter Meeting:

ALA Annual Meeting:

IFLA Annual Conference:
Amsterdam August 16-21, 1998

ESRI User Conference:

International Miami Map Fair:
Miami February 6-8, 1998

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EDITORIAL

We are pleased to be able to publish this special issue of Meridian to coincide with the celebration of the 100th anniversary of The New York Public Library's Map Division. This public library collection, with over 400,000 maps, is considered one of the premier research collections in the world. The Map Division's reputation rests not only on the size and scope of its collections: its curators, both past and present, have all been preeminent leaders in our field.

Our Special Editor for this issue, current Chief Alice Hudson, is an example of the esteemed professionalism that has led the Map Division throughout its history. Alice has been not only an active curator of the collection, but also an avid promoter of maps in the New York City area who has represented the Map Division and The New York Public Library with distinction at numerous national professional meetings. No better compliment could be given than that of the authors of the recent book, *Manhattan in Maps*, Robert Augustyn and Paul Cohen, who write: "Alice Hudson is the best-informed curator of New York City maps, and she is exceedingly generous in sharing her knowledge and providing assistance."

We publish this issue of Meridian to celebrate this wonderful collection, located in the heart of the world's most vibrant city, and its curators who have developed the Map Division through its first hundred years. The articles herein give but a small glimpse of the riches of this wonderful collection of maps and urge us to visit Alice and Nancy Kandoian to ask: "But what else do you have?"

David A. Cobb
Editor

NEXT ISSUE

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Established in 1898, the Map Division has roots going back to the establishment of the Astor Library and the Lenox Library in the early 19th century. The Astor Library was the local public library and had a "current" focus. The Lenox Library was a rare book library. In 1895 those two separate New York City libraries, along with the Tilden Trust, united to form The New York Public Library. The building in which the Map Division is now situated was opened in 1911. The first home for maps in the new building was in a small room on the third floor, and within a year the collection was moved to a larger room opposite the Art Division. Organizationally, until 1916, the Map Room was under the jurisdiction of the American History Division, and only became a Division under the leadership of Walter Ristow during the World War II era. On March 1, 1963 the Map Division moved to its present home on the first floor, Room 117, just north of the main lobby, Astor Hall.

Materials in the Map Division collections date from the 16th century to the present. In addition, envelopes are filled with uncataloged collections of commercial mapmaker's catalogs, antiquarian dealers' catalogs, and official government mapping agency catalogs. Access to the cataloged collections is available via CATNYP, the online public access catalog. In addition, a ten volume dictionary catalog of the Map Division, published by G.K. Hall in 1971, provides access to the historical files. Many of these records are being retroconverted into OCLC, most especially the monograph and atlas records.

The first chief of a separate map collection, in the Lenox Library, was Thomas Letts, scion of the London stationers, who lived out his later years in New York City, with a residence on Staten Island, N.Y. He was followed by William A. Elliott, who retired after 40 years service to the Library in 1937. Walter Ristow joined the staff in September 1937 as Head of the Map Room, and became the first Chief of the newly established Map Division on October 1, 1941 [not 1942 as stated in the Map Collector article cited below]. In December 1946, he headed off to the Library of Congress, to become Assistant Chief of the Map Division. Gerard Alexander was First Assistant in charge of the Map Division, N.Y.P.L., coming to the Library in 1947 from the United Nations. He became Chief in 1958, and retired in 1981. Alice Hudson, current Chief, came to The New York Public Library in 1970 as map cataloger. In 1977 she was promoted to First Assistant, and in 1981 was appointed

The collections today continue to reflect the richness of our inheritance from the Astor and Lenox libraries.

Two notable alumni of the Map Division include eminence photographer Walker Evans and author Lindley Hubbell.
Chief of the Division.

Two notable alumni of the Map Division include Walker Evans, the eminent photographer, who loved maps from childhood, and spent time in 1924-5 as a page in the third floor map room. He was joined in 1925 by Lindley Hubbell, author of numerous collections of poetry, and a literary hero in his adopted land of Japan. Civil War historian Shelby Foote, on a recent visit to N.Y.P.L., commented to Alice Hudson that Hubbell used to lead some fairly wild tours of Manhattan for his visiting out-of-town literary buddies decades ago. Not much has changed...

The Mercator Society of The New York Public Library, founded in 1986, is the funding group for the Map Division. Members donate $250 or more annually to the Division for the support of its conservation and acquisition of antiquarian maps programs. At least two program meetings are held each year, and an irregular newsletter is published for the membership. Guest speakers have included Helen Wallis, Mark Monmonier, David Woodward, Tony Campbell, John Tauranac, Gary Fitzpatrick, among many others. A major Mercator project involved the purchase of acid-free, made-to-measure, drop-spine boxes for most of our 17th century atlases, for protection from dust and light. In 1997, the map collection of one of the Mercator Society's founding members, Lawrence H. Slaughter, came to the Map Division as a gift in his honor from his family. The Mercator Society has been a source of affirmation and support for the Division, and a model for several libraries investigating the establishment of similar donor groups over the last few years. (See Meridian # 5 for further information on this organization.)

In 1996 the central building in which the Map Division is located, was renamed the Center for the Humanities, one of four centers making up The Research Libraries, The New York Public Library. See the bibliographic note later in this issue for further reading material on the Map Division, Center for Humanities, The New York Public Library.
Manhattan on Paper: The Mapping of Property and Environment in Manhattan Since the 1600's

Alice Hudson, Chief
Map Division
New York Public Library

New York City real estate and property maps and atlases form one of the strongest collections of the Map Division of The Center for the Humanities, The Research Libraries of The New York Public Library. The division holds some 800 New York atlases, covering City streets, farm outlines and land transfers, block and lot data, land use, and planning. In addition, 15,000 sheet maps, including harbor charts, pier maps, railroad, rapid transit and subway maps, underground watercourse and waterlot maps, street maps, and tourist maps serve as visual records of the City's development from the seventeenth-century to the present.

On a daily basis, archaeologists, architectural historians, historic preservation specialists, and researchers from many other fields come to the division in search of information on locations in New York City. Research on literary and historical landmarks, archaeological sites, building histories, ethnic communities, and architectural site plans, as well as for novels, films, plays and news stories, is conducted here on a regular basis. Tracking the historical footprint of a particular site through a variety of maps in the division might well transport a researcher backwards in time from a proposed new thirty-story office building, to a lowrise factory or industrial site, to a brownstone row, to a farm, to common pasturelands, to a Native-American village—all on the same site.

In recent years, environmental impact statements have been major products of research conducted in the division. For example, the area of Manhattan to be covered by the proposed "West Side Highway" has been studied intensively by all parties to the issue. No doubt a shelf full of environmental documents exist that could not have been produced without the historical property records in the Map Division.

This article identifies landmarks and trends in the history of the mapping of Manhattan Island as represented in divisional holdings. It is followed by a check list which gives an item-by-item account of selected maps from the Division collections which feature Manhattan property and environmental information. The Library's ten-volume Dictionary Catalog of the Map Division, published in 1970 with G.K. Hall, is perhaps the best overall key to these resources. It is updated by the online catalog, CATNYP, located in the Map Division reference room (and accessible on the Library's homepage) where records will be found for antiquarian and modern maps of Manhattan purchased and cataloged since 1970.

The check list serves to update the classic 1931 work by Daniel C. Haskell, at that time the Library's Assistant Bibliographer. Manhattan Maps, a Co-operative List has been a tool for enhanced access to these materials since it was published originally in series in the Bulletin of The New York Public Library in the April-May and July-October 1930 issues. The Haskell List is a chronological description of Manhattan
The earliest known European maps of Manhattan date from the seventeenth century period of Dutch exploration.

By 1686 it was an English enclave, and New York City attempted to assert its municipal control over the entire island of Manhattan.

...this massive military rendering emphasizes all the data needed by the soldier on foot or horseback.

The earliest known European maps of Manhattan date from the seventeenth century period of Dutch exploration. Property mapping from this time includes the rather plain “Manatus” map of 1639, which identified early Dutch farms (bouweries) covering Manhattan, and the 1660 “Castello” Plan, which delineated every building in the village of Nieuw Amsterdam. Stokes in his Iconography discusses these maps at considerable length, and, most important, identifies the owners of properties shown. Facsimiles of these maps are held by the Center for Humanities Map Division.

Late seventeenth century New York City, with its northern boundary at Wall Street, took up only a half-mile of Manhattan’s thirteen-mile length. By 1686 it was an English enclave, and New York City attempted to assert its municipal control over the entire island of Manhattan. Through authority of the Dongan Charter, the City owned all land not claimed by individuals, and all shoreland between high- and low-water marks. This was an early assertion of de jure government control over potential development, and promised future City income from the sale of water lots and common lands north of the city boundary.

However, a century later, New York City remained quite small in area, with its boundary still situated well below present-day Canal Street. General street maps could be drawn in enough detail to name some individual buildings and property owners and to delineate commercial activities. Two landmark English maps in this class are those by Bernard Ratzer, drawn in 1767, and by John Montresor, surveyed in the winter of 1766. They are invaluable cartographic portraits of New York City just prior to the American Revolution. William Cumming analyzes these two maps in detail in respect to their content, construction and accuracy in his article “The Montresor-Ratzer-Southier Sequence of Maps of New York City, 1766-76,” Imago Mundi, No. 31 (1979).

The best representation of Manhattan as an island, with rolling hills, dirt roads, plants, creeks, and streams, is the British Head Quarters Map of 1782, reproduced in facsimile in 1900. Measuring 47 by 116 inches, this massive military rendering, drawn during the long British occupation of Manhattan at the time of the American Revolution, emphasizes all the data needed by the soldier on foot or horseback. Every hill, valley, stream, road, pathway, estate, garden, military fortification, and far-flung village outside the City boundary is drawn at a scale of 6.5 inches to the mile. It is our last captured memory of Manhattan Island as a natural piece of earth, yet the development to come is revealed in the growing network of roads connecting scattered farms and outlying villages, such as Harlem, with New York City miles to the south.

The manuscript 1782 map was not engraved on copper and contemporaneously published. In 1900, B. F. Stevens published a same-size limited edition facsimile from the original kept in the War Office, London. The New York Public Library acquired one of the limited edition facsimiles issued only to subscribers.

THE NINETEENTH CENTURY

In 1804, New York City officials initiated a plan to map all settled lands and again tried to assert control over future development as they had.
in 1686, but this was stalled by city politics and local landowners. New York City officials then sought help via the power and authority of New York State, and the New York State Assembly appointed three Commissioners in 1807 to design an appropriate street plan for the growth of New York City (Reps, 196).

John Randel was hired by the Commissioners in 1808 to survey Manhattan and to draw the original plan. He did produce several manuscript copies of his survey. Unfortunately, William Bridges, City Surveyor, apparently using the information gleaned from one of the manuscript maps on display in New York City, produced his own version, and had it published under his name in 1811. Randel was embittered by this for the rest of his life. Any notoriety Bridges enjoyed was short-lived, as he died in 1814.

In 1811, Manhattan Island was wrested from the whims of nature and independent-thinking property owners who had begun randomly settling the area between the city of New York and the village of Greenwich to the north. That year, with the publication of the Commissioners’ Plan, New York State governmental control was established over Manhattan development from the Battery to 155th Street. Rolling hills, meandering streams, farms, estates, and shanty towns in the way of the grid plan for the City were all to disappear.

After some consideration of more picturesque, but less practical, “circles, ovals and stars,” the Commissioners opted for the unimaginative pattern of regular blocks, with streets and avenues at right angles. The 1811 Commissioners’ Plan predetermined the military precision of Manhattan’s blocks from 14th Street north. Originally extending only to 155th Street, in later years the City sought permission from the State Assembly to change and extend the grid to Spuyten Duyvil. I.N. Phelps Stokes describes in the chronology of his Iconography of Manhattan Island how for decades the City had to continually seek permission of the state legislature to make changes to the 1811 grid—for example, to incorporate meandering Broadway, or to open for use streets drawn in the original plan, but constructed on the ground decades later (Stokes, 5:1957).

On the Bridges map, Broadway is absent, purposely deleted from the grid, even though it was a major road between the cities of New York and Albany. In existence since Dutch times, Broadway stubbornly held up against the need for an orderly grid. Today Broadway cuts diagonally across Manhattan’s right-angled streets and avenues. The Eastern or Boston Post Road was not so lucky, but it did not lead to the State Capital!

No wide expanses of parkland were originally called for by the Commissioners, because unlike Paris and London on their insignificant streams, Manhattan lay in the wide arms of the sea, which provided enough fresh air for anybody’s health (Bridges, 4).

Clearly the Commissioners’ original plan was changed over the years, and numerous parks, including Central Park, were inserted into the grid. A military parade ground, in the Union Square neighborhood, and Jones Wood, on the Upper East Side, were removed from the original Commissioners’ plan. Nature was to be commanded, and over the years many rolling hills were levelled, and valleys filled in, to better meet the development patterns required by the entrenched grid plan.

In 1836, J. H. Colton published the Topographical Map of the City and County of New-York, and the Adjacent Country... drawn at about half the scale, or detail, of the Commissioners’ Plan of 1811, on which it was probably based. The Colton map, through the symbolic use of shaded blocks, shows the continuing growth of Manhattan’s population, with the northern edge of settlement hovering only around 12th Street in 1836, and with the Chelsea neighborhood.
clearly an area of recent development.

Colton uses a hachuring technique to show the topography of Manhattan north of the settled areas. His map depicts the rough ground of the future Central Park, along with the proposed streets surveyed in the grid pattern ordained in 1811. Broadway meanders across the grid, and the route of the recently constructed underground Croton water pipeline is shown. The map highlights ward boundaries; streets established by ordinance; streets opened or being regulated; the built city; squares and parks; public buildings and churches; country seats and ornamental gardens; forts and fortifications; hills, valleys, and running streams; woods and fruit trees; marsh and common grasslands. A researcher recently used it to identify wetland areas within New York City.

The Colton map begs comparison with the earlier British Head Quarter Map of 1782 and the 1811 Commissioners' Plan. With their careful delineation of natural features, the three maps are fundamental resources in the understanding of the physical nature of Manhattan Island and its environment.

By the late 1840s, William Perris, a civil engineer trained in London, was in Manhattan and on the verge of creating an entirely new way of looking at the City. Responding to the needs of insurance companies to record property losses and liabilities before and after the fires that often swept the City, William Perris created detailed block and lot maps. Drawn at a scale of 50 or 60 feet to the inch, these maps recorded the structure of every building. They emphasized by
color and symbol particularly dangerous establishments, such as printing plants or breweries and factories with steam boilers (Figure 1). His magnum opus, the Insurance Map of the City of New York, published in multiple volumes from 1851 to the late 1880s, paints a detailed, evolving picture of the City from the antebellum era to the gilded age.

A less massive, yet important, portrait of the City in mid-century, while it was in the midst of incredible waves of immigration, was created in the form of two different maps by civil engineers John F. Harrison and H. A. Jones in 1851-52. Totaling 46 by 165 inches if joined, the two maps provide much political and property information. Important buildings are named, and wards are clearly shown. Produced separately, the maps are drawn at slightly different scales, allowing for more detail on the map of lower Manhattan and its more densely packed blocks. The two maps were published by Matthew Dripps and are known by his name, e.g., “the Dripps map of 1851.”

Matthew Dripps, an Irish grocer, immigrated to America on board the bark Patrick Henry in 1849. Shortly thereafter he settled in Philadelphia, where he worked as a “collector,” probably of taxes. He produced two maps of the Philadelphia suburbs. On moving to Brooklyn in 1850, he set up shop as a map publisher. He was typical of many nineteenth-century mapmakers and publishers in not having had formal training in geography or mapmaking. His first major publication was the map of Manhattan “northward to 50th Street” in

FIGURE 2. This detail from Dr. E.R. Pulling’s Sanitary and Social Chart of the Fourth Ward of the City of New York shows one “insalubrious locality” (*) across the street from a church, numerous houses “where typhus or typhoid fever occurred during the past year” (**), and a multitude of “liquor stores, or drinking places” (I.S.).
The NYPL map has manuscript notations pinpointing the proposed route of the Brooklyn Bridge...

The Viele map is a major resource for environmental studies, revealing clearly the growing "made land" and shrinking wetlands of the rapidly expanding city.

Vividly printed maps of farms and common lands illustrate the evolution from rural to urban New York.

1851, followed a year later by his map of Manhattan "northward from 50th Street."

The influx of immigrants to the City, and the spread of disease caused by unsafe water supply and other unhealthy living conditions, led to great interest in promoting a safer and healthier city. In 1864, Dr. E. R. Pulling published a Sanitary and Social Chart of the fourth Ward of the City of New York, to accompany a report of the 4th Sanitary Inspection District made to the Council of Hygiene of the Citizens' Association. His map is detailed enough to show every house, privy, shanty, church, school, hydrant, liquor store, sailors' boarding house, and other "insalubrious localities" in the fourth ward, such as houses where typhus had occurred (Figure 2). The fourth ward covered the Lower East Side, and was known as one of the "two most wretched and criminal wards in the city," associated with the infamous Five Points district.10

As can be determined from the above description, the Pulling map is most informative about the kinds of occupants residing in the real estate. Every house is identified by a street address, which makes this map an invaluable tool when used with 1860 Census data or a reverse directory for the year 1863 or 1864. Maps with this amount of detail about the economic and social conditions of each ward might well have been useful for studying Manhattan's past, but no other such detailed ward maps have been found.

In 1867, a massive wall map was published of the "business portion of New York City," on which many of the commercial buildings are identified. The J.T. Lloyd map, copyrighted in 1865, measures circa 77 by 48 inches. It is drawn at a scale of 150 feet to the inch and covers the City from the Battery to Chambers Street, river to river. The New York Public Library copy is apparently unique. On the verso is an 1885 letter impressed with the wax seal of the U.S. War Department and signed by Secretary of War Robert Todd Lincoln. The letter states that an "uncolored and unvarnished" variant of the map is on file in the War Department. The NYPL map has manuscript notations pinpointing the proposed route of the Brooklyn Bridge, along with information on the Bridge's effect on the width of the river. In respect to property, the map is quite interesting for its clear representation of Manhattan real estate supplanted by the new Brooklyn Bridge and its access roads. Variant editions of this map have been located in the U.S. Library of Congress and the National Archives.

Not until 1874 were the City and County of New York governments consolidated according to the chronology in Stokes's Iconography. Two maps published in 1873 and 1874 probably related to the consolidation, and the City government's desire to further its knowledge of, and control over, the entire island of Manhattan. In 1873 the New York City Department of Docks published a Map Showing the High and Low Water Marks and the Original City Grants of Lands under Water Made to Various Parties from 1686 to 1873, which cataloged how the City sold off parcels of shoreline over the years. Also in 1874, Egbert Ludovicus Viele published his Topographical Atlas of the City of New York, updating his 1864 Manhattan map, adding coverage of the newly annexed areas in what is now the west Bronx. Showing topography, original watercourses, and made land, the "water map," as it is now familiarly known, is still used to determine the sources, such as long-buried streams and springs, of unwanted water in construction sites, and to plot locations of landfill, which had been used since Dutch times to expand and improve the shoreline of the City.11 The Viele map is a major resource for environmental studies, revealing clearly the growing landfill ("made land") and shrinking wetlands of the rapidly expanding nineteenth-century City.

After the Civil War the population of New York City burst its bounds and
spread north, rapidly filling in the blocks and lots of the 1811 grid. Disappearing from the scene were the old farms of Manhattan, which were being subdivided into blocks and lots to fit the grid. Several publications focus on the farms and their conversion to urban lots. Otto Sackersdrorff’s Blue Book of Farms, published in 1868 and revised in 1887, describes the farms as of 1812. Two sets of farm maps are filed with the sheet map collections, with poster-size maps of each individual farm in great detail, often listing names of block and lot inheritors and purchasers. Spielmann & Brush, in 1881, produced Certified Copies of Original Maps of Property in New York City, Filed in the Register’s Office. Vividly printed maps of farms and common lands illustrate the evolution from rural to urban New York. Finally, Frederick W. Beers published two atlases (1883-85) for the area above 86th Street only, showing farm lines and property outlines. While all these maps are similar in content, differences do occur, reflecting transfers of property throughout the nineteenth-century. Citations on these “farm maps” refer to property records on file in the Buildings Department of the City of New York.

In 1879 was published a wondrous “bird’s-eye-view” of New York City, from the Battery to Spuyten Duyvil, including the annexed areas of the western Bronx. The Will Taylor view, published by Galt & Hoy, exuberantly celebrates the City in its delineation of the myriad commercial and residential buildings, Central Park, busy piers, and harbor traffic. Surrounding it all are pictorial advertisements for various businesses in the metropolitan area. Measuring 42 by 73 inches, the map was meant to be displayed on business and governmental office walls, and was sold on rollers for that purpose. The publishers note in a small ad on the map that “the price of this view mounted on spring-rollers is $12.50. In black walnut or gilt case (frame) with handsome cornice $15.” An updated, considerably simplified version, produced by Peter Gillin around 1900, was apparently never published. The Library copy appears to be a working proof, according to Stokes’s Iconography. It has been cut so as to delete advertising panels from the older edition, and has a reviser’s grid red-inked over the plate.

A perfect cartographic companion to the earlier bird’s-eye-view is the 1879 Atlas of the Entire City of New York published by G. W. Bromley and Elisha Robinson. Blocks and lots are clearly outlined, and many important buildings are identified. The Map Division copy has been disbound, and the acidic, brittle plates encapsulated.

Some of the detail of the William Perris maps, focusing on building types and construction, is retained in the Elisha Robinson real estate atlases from the 1880s and 1890s. Vivid fuschia and canary yellow paints, denoting brick and wooden buildings, enliven these property atlases documenting New York City’s rapid development. After starting his career with G.W. Bromley, Robinson became a major competitor during the 1880s and 1890s.

Between 1879 and 1891, old-style ward lot numbers are used, often four-digit numbers. After 1891, the property atlases reflect the newly established citywide block and lot numbering system. We believe this reflects a change from the old ward-based taxation system to the City government-based tax assessment system, but this has not been verified. Stokes’s Iconography does not speak to this issue. However, the 1891 New York City Taxes and Assessments Department Land Map appears to be the City document introducing the new block and lot system “under authority of Chapter 349 of the Laws of 1890,” as cited on the Land Map title page.

THE TWENTIETH CENTURY

From the turn of the century, property atlases of Manhattan, published and revised every few years, have been available from the long-established GW Bromley, E Belcher Hyde, and Sanborn firms.
FIGURE 3. A view of Central Park from an 1879 map of Manhattan. Notice the empty blocks on the West Side.
established G.W. Bromley, E. Belcher Hyde, and Sanborn firms. Their atlases all tend to display similar information: block and lot dimensions, construction materials, number of floors, residential and/or commercial designations, location of underground streams and old shorelines (thus landfill), historical farm boundaries, and elevations of streets above high water at intersections.

Real Estate Data, Inc. now publishes the Sanborn Manhattan Landbook, which itself was once published by the now-defunct G.W. Bromley firm. The Landbook includes ownership and assessed valuation data, supplementing the block and lot maps. This new data reflects the shift from insurance usage to contract work for governmental agencies. The maps are invaluable for the study of economic and social conditions, landmarks, environmental changes, commerce, and development.

Nathan Nirenstein’s Real Estate Atlas of New York City and Its Environs, published in various editions in the late 1950s, mapped in detail the retail shopping areas of New York City. When it is used with Bromley and Sanborn maps for the period, much data for Manhattan business districts can be gleaned.

A useful overview of the City in 1969 is the Plan for New York City [Map Div. 80-680]. While the title implies a forward-looking plan for the future, the six-volume Plan is actually a record of the New York City environment in 1969, according to Michael Shannon’s insightful analysis published in 1975. With a volume for each borough, and individual chapters on each community planning district, the Plan is packed with data on population, ethnicity, social services, land use, and history for every neighborhood in New York City.

The Plan was updated by a series of computer-produced Community Planning District Atlases. Four atlases were published for Manhattan districts no. 3, 9, 11, and 12. Discontinued, this series has been replaced by Block & Lot Maps, one for each community planning district, available from the City Planning Department. These have no topical information, offering only block and lot numbers on computer-generated base maps in handy booklet format.

SUPPLEMENTARY RESOURCES

Additional cartographic resources for Manhattan, from the seventeenth century to the present, include general street maps, harbor and pier maps, and maps of city parks and transit operations. Geologic and topographic maps and nautical charts issued by the federal government are also used in the study of the urban environment. Considerable information on resources for researching “underground” New York — its geology, landfill, subways, pipelines, sewers, and so forth — can be found in an article entitled “Underground New York, a Bibliographical Essay” in The New York Public Library’s Public Service News: Sources and Services in The Research Libraries 1:iv (1989). Neighborhood and regional studies published by the New York City Planning Department and the Regional Plan Association often contain detailed land use maps.

No study of Manhattan maps can be undertaken without I. N. Phelps Stokes’s five-volume Iconography of Manhattan Island, 1498-1909 on a nearby shelf. Stokes provides the historical context underlying Manhattan mapping. Most useful is the chronology of New York City history, in which Stokes cited important changes in New York State laws, and actions of the New York City Common Council. In addition, for some of the more important landmark maps of Manhattan, Stokes records the results of his considerable research into the mapmaker’s biography or the background or technical details on the production of particular maps.

Additional materials for the study of New York City are available in other divisions of The Center for the Humanities, N.Y.P.L. The United

Geologic and topographic maps and nautical charts issued by the federal government are also used in the study of the urban environment.

Stokes provides the historical context underlying Manhattan mapping.

The Plan was updated by a series of computer-produced Community Planning District Atlases.
States History, Local History and Genealogy Division, for example, maintains historical census data; pictorial collections for individual street, block and building sites; and a collection of building prospectuses for co-ops and condominiums dating back to the turn of the century. City directories and church and neighborhood histories provide further insight into Manhattan’s past. Texts on social topics (often suggested by these maps) are available in the General Research Division, or the Science, Industry and Business Library at 34th Street and Madison Avenue, and include immigrant communities, poverty, public health, and industrial and commercial development.

While the Library has one of the strongest collections of New York City property maps and atlases extant, it is complemented by library collections at The New-York Historical Society; the U. S. Library of Congress; the American Geographical Society Collections in Milwaukee, at the University of Wisconsin Library; and the New York City Archives. Additional property information is available from the New York City Buildings Department, the Manhattan Borough President’s Office Topographical Bureau, and the New York City Planning Department.

AFTERWORD

I. N. Phelps Stokes wrote in 1939 that New York seemed to remain a “frontier town” because it was always renewing itself with new waves of people from all over the world. New York never became settled and stodgy and dominated by any one group, making it one of the “most interesting colonies.” The maps in the Library’s collections show that New York remains interesting as it continues to be on the edge of what is fresh, new, unknown, unexplored.
Manhattan Property Maps and Atlases in the Map Division of the Center for the Humanities of the New York Public Library: A Checklist

Alice Hudson, Chief
Map Division
New York Public Library

Following is a selective guide to Manhattan property atlases and maps in the Map Division of The Center for Humanities of The New York Public Library. The checklist is arranged chronologically except for an opening “historical” section covering the mapping of early farms and estates on Manhattan Island. Unless otherwise noted, the maps and atlases listed here were published in New York City in the year cited, bear the classmark [Map Div.], and are housed in the Center for the Humanities, Fifth Avenue and 42nd Street, New York, N.Y. (The symbols ++ or +++ signify that the material is oversized. In some cases, second copies are held in the Stuart Collection, Special Collections Division. An * identifies titles described in detail in the accompanying article).

Many of the atlases have been corrected, or updated, with pasteovers inserted by the publishers. When this is the case, they are listed under the latest correction date noted. Therefore, uncorrected blocks and lots in these atlases reflect information as of the original imprint date of the atlas.

Not all maps and atlases show all aspects of property ownership, but many show house numbers, building dimensions (width, length, and height in stories), block and lot numbers, and building type (e.g., wood, stone). Some highlight other physical and environmental features of interest, such as sewer lines, aqueduct routes, underground streams, wells, hydrants, former farm boundaries (which often affect shapes of buildings and lots), owners’ names, and potential fire risk. With publication irregular, not all years, or even decades, are represented by published property atlases.

Farm Maps/Historical Property Lines

Beers, Frederick W. New York City, 1876-85. Vols. 4-5, covering the area above 86th Street only, show farm lines and property outlines, updating Sackersdorff, Spielmann & Brush, etc. Vols. 1-3 in the series cover the annexed areas in the Bronx. [+++]

Farm Maps. Compiled 1864-87 by J.B. Holmes, City Surveyor, these are detailed block and lot maps showing farm boundaries above the built city at the tip of Manhattan, and land sales as effected by the street grid established in 1811.

Map of the City of New York Showing...the Location of the Different Farms and Estates. Accompanying text, 12 p., 23 cm. [Maps filed with New York City, 1852]. This single map provides an overview of the farms in Manhattan that are individually mapped in the above-mentioned Farm Maps.

Sackersdorff, Otto. Maps of Farms, Commonly Called the Blue Book, 1815, 1868, and 1887 rev. [+++]

Many of the atlases have been corrected, or updated, with pasteovers inserted by the publishers.

With publication irregular, not all years, or even decades, are represented by published property atlases.
These two volumes map farmlands as they were in 1815, overlaid by the Commissioners’ grid of 1811.

Spielmann & Brush, Publishers. Certified Copies of Original Maps of Property in New York City, Filed in the Register’s Office...Hoboken, N.J., 1881. [+++ Another publication delineating the farms swallowed up by the Manhattan grid.

Real Estate, Insurance, and Property Atlases and Selected Maps

1639
The “Manatus” Map.” Facsimile. Locates and identifies Dutch estates. Property owners are indexed in Stokes’s Iconography of Manhattan Island, vol. 2. “Manatus” is the term for Manhattan on the map.

1660
The “Castello” Plan. A facsimile and a redraft version are available. The original was drawn in the summer of 1660, detailing individual buildings from an overhead view. It is named for the castle in which it was kept (with the Medici family papers). Indexed in Stokes’s Iconography of Manhattan Island, 2:215.

1782
British Head Quarters Map.* Facsimile. Military map of Manhattan emphasizing physical geography, roads, estate buildings, and gardens.

1811
New York State. Commissioners. Map of the City of New York and Island of Manhattan as Laid Out by the Commissioners.* Known as the “Commissioners’ Plan.”

1817

1826-51
Bridges, Joseph. Survey Books, 6th Street to 135th Street only. Surveyor’s notes on property he surveyed; very incomplete coverage. [Manuscripts Div.] Index to coverage at Map Division Reference Desk.

1836
Colton, J.H. Topographical Map of the City and County of New-York.*

1850

1851
Harrison, John F. Map of the City of New York Extending Northward to Fiftieth Street. ca. 1851, published 1852 by Matthew Dripps, to whom it is usually ascribed. [2nd copy, Stuart Collection]

Jones, H. A. Map of That Part of the City and County North of 50th Street. Published by Matthew Dripps, to whom it is usually ascribed. Shows Jones Woods (unnamed) and other parklands in green, route of Croton Aqueduct, farm boundaries.

Perris, William. Map of the City of New York 1850-51. Engraved on stone & printed at Mayer & Korffs Lith. (Battery to south side of 42nd Street). This map is the source for the index map in several of Perris’ atlases, and is among the earliest block and lot maps of the city. The legend identifies 12 places of amusement; 18 public buildings; 31 colleges, universities and literary, scientific and benevolent institutions; 28 banks; 11 markets; and 30 hotels, plus a large number of vacant lots, all below 42nd Street! [Map Division Map Div. 95-2755, framed in Chief’s Office; Map Div. 90-7625, 4 sheet photostat of U. S. L. C. copy, filed with N. Y. C. 1851]
1852-54
Perris, William. Maps of the City of New York. (Battery to 42nd Street only). Reference copy, color fiche in reading room. 7-volume hard copy in storage. Building, block, and lot data at a scale of 1" = 50'.

1854
Dripps, Matthew. Topographical Map of the City of New York North of Fiftieth Street. Shows quarries in upper Manhattan, farm lines, Central Park area in green.

1855
New York City. City Surveyors. Maps of the Wharves and Piers on the Hudson River and East Rivers from the Battery to 13th Street.

1857-62
Perris, William. Maps of the City of New York. Battery to 79th Street at a scale of 1" = 50'. Building, block, and lot information. 7 v. Vols. 1,6,7 disbound, encapsulated, with sheet maps.

1857
Perris, William. Maps of the City of New York. Ms. corrections this copy. Vol. 1 only. 1" = 60'. Building, block, and lot information. [+++]

1859
Perris, William. Map of the First Ward of the City of New York. (Covers Manhattan from the Battery to Liberty Street/Maiden Lane.) Shows every block and lot, giving street numbers for every building. Photostat of the original sheet map in the Library of Congress Geography and Map Division. [Map Div. 90-7608]

1860
Fort Washington Section. MS. [1" = 200'; 26" = 1 mile; 1:2,437] 152nd Street to 208th Street. Shows original farms, estates, proposed street grid. 20' contours. Based on preliminary maps below. Filed with Manhattan, parts. [77-2103]

1866
Preliminary map of the Commissioners of Washington Heights. MS, 1st state. 1" = 200'; 26" = 1 mile; 1:2,437. 152nd Street to Spuyten Duyvil. No contours or hachures. Filed with Manhattan, parts. [77-2027]

1867

1867
Dripps, Matthew. Plan of New York City, from the Battery to Spuyten Duyvil Creek. 20 sheets. Disbound. Shows every building, old farm lines, street numbers at the corners, railroads, etc. Lots with buildings are shaded. [Also Stuart Collection 272]

1868
Lloyd, James T. Lloyd’s Mammoth Map of the Business Portion of New York City.* Identifies many commercial occupants in lower Manhattan, south of Worth Street.

1867-89

1868
Dripps, Matthew. Plan of New York City from Battery to Spuyten Duyvil Creek. [+++]

Perris & Browne, firm, publishers. Insurance Maps of the City of New York. Vol. 2 only. (Covers Rivington north to 22nd Street; 6th Ave, 4th Avenue and Bowery to East River.) 34 named apt. buildings are indexed on the title page. Heavy corrections and pasteovers, probably post-1868. Scale varies according to density of lots, from 1" = 50'-60'. Detailed legend to descriptive building symbols used on maps, useful for all other Perris atlases! [++]

1868-72
New York City. Central Park Commissioners. Map of the City of New York, Parts 1-2, Showing the Streets, Avenues, Roads, Public Squares & Places Laid Out...by the Board of Commissioners of Central Park...Extending from 59th to 155 Street (1868) and from 155th Street to Kingsbridge (1872). Mss. notes, drawings of lots sold after 1868. Compiled by Otto Sackersdorff, map clerk and City surveyor. 2v. bound as one. [++]

1872
Crofton, John. Croftons Real Estate Atlas of Part of the City of New York. Vol. 1 only, “the West Side,” 59th to 110th Streets, and from Central Park to Hudson River. [++]

1873
New York City. Dept. of Dry Docks. Map showing the High and Low Water Marks and the original City Grants of Lands under Water....1686-1873.*

Wallace, J.B., and T. Shillington. Empire City Lot Book. No other lots or dimensions shown, only block outlines! Designed for real estate sales use. [++]

1874
Viele, Egbert Ludovicus. Topographi-
1883-88
Robinson, E. and R. H. Pidgeon. Atlas of the City of New York. 6v. [+++]

1884-1970

1885
Robinson, Elisha. Atlas of the City of New York. Disbound, encapsulated, with sheet maps. [+++]

1889-90
Robinson, Elisha, and Roger H. Pidgeon. Robinson's Real Estate Atlas of the City of New York. Vols. 5-7. All three volumes have pasteover corrections, undated, presumably post-imprint date. V. 5: 40th St. to 86th St., west of 61st and 8th Avenues; v. 6: 86th-114th Streets; v. 7: 114th St. to 138th Street.

1890
Bromley, G.W. Atlas of the City of New York. Philadelphia, 1890. Vol. 3 only, 40th-86th Streets. [++]

1890-93

1891
Bromley, G.W. Atlas of the City of New York, Manhattan Island. Philadelphia, 1891. [++]

1892

1893

1894

1895-98
LeFevre, Isadore A., Firm, Civil Engineers. Atlas of Manhattan Island. 9 v. Includes ms. notes. Imperfect set, several parts wanting. Indexes to owners names separately bound. Block and lot dimensions only, no building dimensions. [+++]

1896

1897
Bromley, G.W. Atlas of the City of New York, Manhattan Island. Philadelphia, 1897. [++]

1898
Bromley, G.W. Owners' Names of the City of New York, Borough of Manhattan. In block and lot order. [97-3419 ++]

1899

1900

1902
Bromley, G.W. Atlas of the City of New York, Borough of Manhattan. Philadelphia, 1902. [++] [2nd copy, TET+++]

New York City. Taxes and Assessments Dept. The Land Map of the City of New York. Introduces the block and lot numbering system in use today. No property information is shown. [+++]

1892

1893
1903
Bromley, G. W. Owners' Names of the City of New York, Borough of Manhattan. [2nd copy, TET+] New York City. Finance Dept. Maps of the Real Estate Belonging to the City of New York. [++]

1904

1905
Bromley, G. W. Atlas of the City of New York, Borough of Manhattan. Philadelphia, 1905. [++]
Owners; Names of the City of New York, Borough of Manhattan. [97-3420++]

1907
Block line map of the heavy valued district, New York City. [Seventh Avenue to Third Avenue, 42nd Street to Battery Park.] Shows building heights in stories and feet, and width of streets in feet. [Filed with Manhattan maps, 1907]

1908
Bromley, G. W. Atlas of the City of New York, Borough of Manhattan. Philadelphia, 1908. [++]
Owners names of the City of New York, Borough of Manhattan. [81-325++]

1909

1910
Bromley, G. W. Owners' Names of the City of New York, Borough of Manhattan. [Map Div. 81-325++]


1911
Bromley, G. W. Atlas of the City of New York, Borough of Manhattan. Corrected to June 1911. [++]
Rafalsky, Mark & Co. The Investor's Map of Manhattan....Apparent reprint of Bromley Desk and Pocket Atlas (see 1910? above), without attribution. [++]

1912
Owners' Names of the City of New York, Borough of Manhattan. [++]
Owners' Names of the City of New York, Borough of Manhattan. Updated from 1910. [++]

1913
Hyde, E. Belcher. Atlas of the Borough of Manhattan. Vols. 1, 2, and 4 for 1906-7, updated to 1913. [++]
v. 2 disbound.

Block line map of the heavy valued district, New York City. [Seventh
Avenue to Third Avenue, 42nd Street to Battery Park.] New York, 1913. Shows building heights in stories and feet, and widths of streets in feet. [Filed with Manhattan maps, 1913.]

Map of New York City south of Bleecker Street showing the drygoods district. Shows building heights in stories and width of streets in feet. [Filed with Manhattan maps, 1913.]

1914

1914-15

1916
Bromley, G.W. Atlas of the Borough of Manhattan. Desk and library ed. [Disbound, encapsulated plates with sheet maps.]

Hyde, E. Belcher. Manhattan. Vol. 3, 1906, updated to 1916. [++] (See also 1913, Hyde, above, for vols. 1, 2, 4.)

1917

New York City. Taxes and Apportionment Board. The Land Map of the County of New York. Block outlines only. [++]

1918
Byrnes, Clara. Block Sketches of New York City. Includes only blocks in Greenwich Village, Lenox Hill, southeast Harlem, Hell's Kitchen. [IRH +++

1919
Bromley, G. W. Atlas of the Borough of Manhattan. Desk and library ed. [++]

1920

1920-22
Bromley, G.W. Atlas of New York, Borough of Manhattan. 5v. Vols. 1, 3-5, on shelf; vols. 2, 3, disbound, filed with sheet maps. [++] [2nd set, with ms. notations, 5v., KAL+++]

1922
Sanborn Map Co. Pier Map of New York Harbor. [Map Div. 75-570++]

1923

Atlas of the Borough of Manhattan. Philadelphia, 1921, corrected to 1923. [++]

1925

1926
Bromley, G.W. Atlas of the City of New York, Borough of Manhattan. Philadelphia, 1914. Corrected to 1926. Vols. 4-5 only. [++]


1927


1928
Sanborn Map Co. Pier Map of New York harbor. [75-571 +++]

1929
Sanborn Map Co. Atlas of Manhattan. Vol. 4. [+++]

1930

Land Book of the Borough of Manhattan. Desk and library ed. Disbound, with sheet maps.


1931

1932


Industrial Map from Chambers Street to 72nd Street, New York, A.I.A., 1932. Neg. photostat. Covering the West Side, this charming map highlights abattoirs, chemical industry sites, meat markets, restaurants, warehouses, etc. [++]

1934

Slum Clearance Committee of New York. Maps and charts. Includes detail but hard-to-read block and lot maps showing assessed valuation, land use, new construction, fireproof and frame building, for the following neighborhoods: Middle West Side (42nd-72nd Sts., west of 8th Ave.); Lower West Side (Canal to W. 4th St., west of Broadway); Lower East Side (Brooklyn Bridge to 23rd St, east of Bowery and 3rd Ave.); Middle East Side (60th-78th Sts., east of 2nd Ave.); Upper East Side and Harlem (96th-148th Sts., east of 5th and St. Nicholas Aves.). [++]

1935

1939

Atlas of Manhattan. Vol. 8, 1911, updated to 1939. [Map Div. +++]

1940

1943

1944

1949-50
Bromley, G.W. Atlas of the City of New
York - Borough of Manhattan. 1914-22, corrected to 1949-50. 5 v. [85-2937+++]

Hyde, E. Belcher. Atlas of the Borough of Manhattan. 4 v., 1906-7, corrected to 1949-50. [+++]

1955

1955-58
Nirenstein’s Real Estate Atlas of New York. 4 v. [Map Div. +++]

1957
Bromley, G.W. Atlas of the City of New York, Borough of Manhattan. 5 v., 1930-32, corrected to 1957. [+++]

1957-60
Bromley, G.W. Atlas of the City of New York, Borough of Manhattan. Vols. 1-3 only. [+++]

1967
Bromley, G.W. Manhattan Land Book. 1955, corrected to 1967. [++]

1969

New York City. City Planning Commission. Plan for New York City, 1969. Vol. 4: Manhattan. Arranged in chapters by planning district, and for each gives neighborhood history, ethnic makeup, economic and social conditions, an aerial photo, land use map, and a map of community resources, e.g., schools, hospitals, museums, colleges, city services. [Map Div. 80-680++; JLP 72-3; IRGC+++ 79-1243]

1970
Bromley, G.W. Atlas of New York City, Borough of Manhattan. Vols. 4-5 only. Corrected from 1932 to 1970. [+++]

1972-73

1974

1975
Bromley, G.W. Manhattan Land Book. 1970, corrected to ca. 1975. [Map Div. 75-75++]

Sanborn Map Co. Manhattan Land Book. 1975-76 ed. [76-628+++]

1978
Bromley, G.W. Atlas of New York City, Borough of Manhattan. Vols. 4-5 only, 1932 corrected to 1978. [83-40+++]

1980

1983-
Real Estate Data Inc. Sanborn Manhattan Land Book of the City of New York. Annually updated property atlas; includes extensive ownership and property valuation data. [83-2577+++]

1984

1989
New York City. City Planning Office. Manhattan Community District Atlases. Tax block and lot numbers only. [91-7469]
Windows on Nineteenth-Century New York: The Perris & Browne Atlases

Jean Ashton
Curator of Rare Books
Columbia University Libraries

The series of atlases published by William Perris and his son-in-law, Henry H. Browne, between 1852 and 1890 are among the most important and revealing of the many map resources available to students of nineteenth-century New York. More generous in scale than the Bromley and Sanborn atlases which appeared slightly later and eventually superseded them, the Perris & Browne books capture the atmosphere of a metropolis poised on the edge of the modern world. The irregular, now-faded red and green rectangles and squares, which represent on the map the parks and buildings of the city, are spread out along broad empty avenues and oddly angled streets. They define a space which seems at once expansive and pastoral, as if the villages and fields of colonial Manhattan had temporarily freed themselves from the rigidities of the urban grid imposed by the Commissioners' Plan more than forty years before.

Researchers at the historical libraries of the City have come to take the Perris maps for granted. At the New-York Historical Society, there is a nearly complete run of these extraordinary books, most of which were donated by Browne himself in the 1870s and 1880s. Readers use them for a surprising number of purposes: to track the history of a building site, to confirm the existence of a now-defunct family business, to identify an institution whose records have largely disappeared, to study landfill, neighborhood growth, genealogy, and urban demography. In addition to building shape and placement, the maps indicate construction materials, the location of skylights, and the number of floors in original buildings and their extensions. Thus, by working backward through the series it is possible to discover within a later structure the contours of an earlier outbuilding, long since swallowed by its successor, or to trace the expansion of a family barn into a commercial livery stable or cartage business. Despite the progressive embrittlement which has rendered the bound volumes increasingly fragile and difficult to handle, the Perris & Browne atlases remain among the most popular research tools at the Society's library, yielding information with equal generosity to the professional scholar and the casual historian.

The City of New York whose lineaments are recorded in the Perris atlases was a noisy and often filthy metropolis - raw, exciting, and filled with the self conscious energy of uncontrolled adolescent growth. The downtown and east side wards, settled nearly two hundred years earlier and long converted to commercial uses or transformed into reeking warehouses for the diseased and destitute, were often still crisscrossed by the cobblestone sluices and mud-filled lanes laid out by Dutch farmers...
a century before. During business hours, omnibuses and carriages could be deadlocked at intersections for thirty minutes at a time, while in the crooked alleys which wound behind new townhouses and stores, invisible from the broad avenues that stretched north, pigs sometimes rooted for garbage and bespattered the passersby. On the fringes of the residential wards, barns and chicken houses could still be found. Stables and slaughterhouses coexisted with the breweries and coal yards necessary to provide for the basic needs of a growing populace. Near them, orphanages, hospitals, pleasure gardens, and asylums occupied former pastures and the sites of colonial cottages. The built environment was constantly changing, and rich and poor could seldom escape one another. “Extravagance in living, extravagance in style, extravagance in habitation, extravagance in everything prevail in New York,” noted a writer for the Herald in the 1850s.¹

The rapid and uneven development of a city which would grow from 325,000 to more than 800,000 in the two decades before the Civil War brought with it the expected hazards and miseries of urban life: riots, epidemics, crime, and, in particular, that scourge of all nineteenth-century American cities, fire. It was in response to this last threat that the Perris & Browne atlases were created, as part of an attempt by the New York insurance business community to control or minimize the economic consequences of the disastrous conflagrations that swept the city on a regular basis.²

In a country where the abundance of forests made wood the cheapest building material, fires were frequent and devastating, and nowhere was the danger from fire more threatening than in Manhattan, where the crowded streets were lined with derelict houses that had been converted into bulging tenements, where wooden theatres and dance halls were.

FIGURE 1.
Cover from an 1868 Perris and Browne atlas.

Fires were frequent and devastating, and nowhere was the danger of fire more threatening than in Manhattan.
sometimes contiguous to high-risk manufactories, and where municipal fire services would not be instituted until 1867. Executives in the many local insurance companies were eager to take advantage of urban growth, but the disastrous fires in the lower part of the city in 1835 and 1845 forced them to acknowledge that they had few clear sources of information about the businesses they were underwriting.

The first efforts by insurance companies to establish a uniform risk code had been made as early as 1819. By the late forties, according to an advertising broadside distributed by the Perris & Browne firm in 1879, there was still "no method of quickly determining what risks were being carried on in the proximity of an applicant's building; hence it often followed, when a fire took place on or near a corner, that a company found itself loaded with some [risks] that had been missed in examining the various pages of their 'register'."

After a serious fire in 1849, at the intersection of William and Cedar Streets in the heart of the drygoods district, drew heavily on his company's resources, George T. Hope of the Jefferson Insurance Company began to sketch a large-scale map on which he hoped to depict every building in the city. He worked on the plan in his spare time for many months, but was apparently dissatisfied with the results, since he eventually turned the job over to William Perris, an engineer trained in England who had walked into his office one day with a map of "similar character." Perris, who described himself in the city directories of the 1850s variously as "engineer," "civil engineer," "architect," and "surveyor" had produced a map of New York in 1849 with a collaborator named Hutchinson (most probably the same map purchased by the city that year for distribution to the local [private] fire companies). He responded to Hope's challenge, and on November 15, 1850, his petition "to be allowed to survey a part of island of Manhattan"
was approved by the Board of Aldermen.

Insurance maps on the scale Hope envisioned and described to Browne had not been produced before in America, although in the 1790s a map of London at the scale of 26 inches to a mile had been compiled by Richard Horwood for the Phoenix Assurance Company, Ltd., and a plan, similar in type although not in scale, had been produced in the early years of the nineteenth century in South Carolina from a survey by Edmund Petrie. Hope, aspiring perhaps to impose intellectual order on the chaos of the downtown wards of New York, commissioned Perris to work at the dramatic scale of 50 feet to an inch, thus creating “a plan of such dimensions that each ordinary dwelling would occupy nearly a square inch of space.” He formed a committee of his colleagues to determine the format, establish a uniform risk code, and decide on standards and colors: “red and yellow for brick and frame, naturally; blue for warehouses, as pencil-marks would show on it distinctly; and green for special hazards, as a cautionary signal.” The code, part of a classification of risks system credited to Hope and published in 1855 in the United States Insurance Gazette and Magazine of Useful Knowledge, encompassed dwelling houses, hotels, and manufactories, and enabled the industry to collect national statistics for the first time.

Once commissioned, the work was sold by subscription. Hope, with some difficulty, rounded up twenty individuals or firms willing to pay $150 for a map of the city to 22nd Street. Nearly twenty years later, Henry H. Browne described how his father-in-law had attacked the project:

From the southern point of the island he [Perris] worked with persevering care, measuring each house and angle accurately, until gradually, volume by volume, a map was produced of such dimensions as had never before been seen. Every detail, such as skylights, steam-boilers, etc., was laid down.

The first volume of the atlas, comprising the 1st, 2nd, 3rd, and 4th wards of the City, was published in 1853, under the title Maps of the City of New York Surveyed under the Directions of Insurance Companies of Said City. It was printed by Korff Brothers, Lithographers, of 30 Cedar Street, whose premises were located around the corner from Perris’s office at 18 City Hall place. Encouraged by the success of the initial volume, Perris extended his survey to 72nd Street. He completed the first five-part, seven-volume set of the atlases in 1855. The plates, precisely fulfilling Hope’s intentions, were 68 x 90 cm. and were hand-colored. Backed in linen and bound, they apparently answered the predicted commercial need, since volumes expanded and updated to cover upper Manhattan as well as Brooklyn and the Bronx continued to appear for the next three decades.

What W. W. Ristow terms “insurance cartography” as a modern commercial venture dates from these Perris volumes. Before his death in 1862, Perris took his son William and his son-in-law, Henry H. Browne, into partnership with him. The firm of Perris & Browne continued under family ownership at various addresses in lower Manhattan until the 1890s, when it was taken over by the flourishing national firm started by D. A. Sanborn soon after the Civil War. Although some changes in scale and technique were adopted by later publishers, the basic approach developed by Perris and George Hope has survived in the more complex but less attractive real estate atlases heavily used by commercial interests today.

The value of the Perris maps transcends their role in the development of cartography. Their spaciousness and clarity enable researchers to see structures clearly, and, in addition, have an aesthetic appeal that can awaken even the most jaded sensibilities. Furthermore, the use of pasted-on

Standard colors included "green for special hazards, as a cautionary signal."

Hope rounded up 20 individuals or firms willing to pay $150 for a map of the City to 22nd St.

Insurance cartography as a modern commercial venture dates from these Perris volumes.
corrections to revise the original volumes as changes occurred in the City makes the maps invaluable records of urban growth. Within just a few years, the first set of Perris atlases began to seem like relics of a vanished past. When Henry Browne, in 1868, donated Volumes 6 and 7 of the original edition to The New-York Historical Society (he was later to donate the whole set and many subsequent volumes), he noted that, although the system of pasting on additions effectively kept the maps “up to time” for the insurance companies, it also had the effect of “destroying the Map as a reflex of New York at the time it was published.” 

In a letter with a subsequent donation (November 10, 1868), Brown
commented further on his gift:

A map of the same portion as it now is
might be more valuable, but I doubt whether
it would possess greater interest, as changes
have been so rapid on the uptown blocks
that a glance at their former aspect brings
back many a reminiscence...To me, the little
patches of red, yellow or green are not mere
ground-plans. I have been round them all
with a tape-line, and the picture of a block is
before my eyes as I look at the pages. Snug
little frame houses in trim gardens,
shrinking away from the first of the brown
stone terraces which would finally elbow it
and its comely fellows from the neighborhood;
old lanes, their traces now marked
only by a broken diagonal line between a
few lots, showing where the trees grew
under whose branches the old New Yorkers
took their country walks and rides...

Still later, writing to Moore on May
25, 1872, Browne added more com­
ments on his atlases and what they
represented:

I send...a copy of Volume 6...contain­
ing the portion between 52nd and 72nd
streets, with dates on each page. Also Vol.
7 of an older series, showing the same
section the first time it was surveyed...

By comparing these volumes, it is
found that during the ten years there have
been erected between 52nd and 72nd Sts,
the following structures:

- Brick Dwellings 2628
- Frame Dwellings, of more than 1
story 307 (and yet we are supposed to
have a fire law)
- Manufactories 73
- Livery, Railroad & Private Stables
(brick) 104
- Churches 15
- Schools & Public or Charitable
Institutions 17;

showing that at a low estimate the
population must have increased at least
30,000 in that time. Whether the schools
and churches have kept pace with this
growth, is a question for others to decide.

Browne continued to give atlases
to the Historical Society until the
1880s, always aware, as he pursued
his hobby, that the changes the books
recorded would be of value to future
historians. These maps, he wrote to

Moore in his donation letter of October
2, 1874:

...are so little known outside the
business for which they were designed,
that few are aware there exists a plan of
the city so carefully drawn, and revised so
often, that the buildings therein can be
described almost as well hundreds of years
hence, as by seeing the real structures as
they now stand. This is done by means of
characters on each building. Take, for
instance, Greenwich Street, north from West
Tenth, (formerly Amos Street) on land
purchased by old Richard Amos the
gardener, from the Earl of Northumberland.
No. 702 was, on April 13th, 1874, a three-
story frame dwelling and store; it had a tin
roof and a brick front; a two-story exten­sion
covered the rear of the lot, and was
used as a separate store, but communicated
above with the front dwelling. No. 704
was a small two-story frame dwelling with
shingle roof and a brick extension; 706 a
more pretentious frame dwelling, also two
stories, with brick front and shingle roof;
alleyway at the south side leading to a
two-story frame stable in the rear; - and so,
house by house, and block by block....

Henry H. Browne was not wholly
informed about the developments in
his field when he wrote the above - the
first Sanborn atlas was produced in
1867, and insurance atlases, modeled
after the Perris volumes, had begun
to appear in other cities in the Postwar period.

A cooperative project
between The New York
Public Library and The
New York Historical
Society to put these works
on microfiche now
promises to make them
available to even more
researchers.
NOTES


2. Documentation of the frequency of fires in New York City in the early decades of the nineteenth century and of efforts to assess the risks involved may be found in Richard Boyd Calhoun, "From Community to Metropolis: Fire Protection in New York City, 1790-1875" (Ph.D. diss., Columbia University, 1973).


4. George T. Hope was Secretary of the Jefferson Insurance Company and later Vice President of the Continental Insurance Company.

5. Little is known of Perris's training or background. Francis Herbert of the Royal Geographical Society, London, reported in a telephone conversation to Alice Hudson, Chief, Map Division, The New York Public Library, the discovery of a manuscript map by a William Perris inscribed "Map Shewing the Streets of the Town of Chippenham, Wilts. 1842." Perris's name does not appear on the pre-1847 passenger lists indexed at the National Archives but is included in the 1850 census records.


11. In the Library of Congress, thirteen loose numbered plates by Perris depict the buildings of the Seventh Ward. These are not backed in linen, as the later commercial sets seem to have been from the start, and show no evidence of having been bound. The attribution in the lower left-hand corner reads "Surveyed by William Perris and Augustus Kurth," and the copyright date is 1852. Some of the lines and numbers look less finished than in the bound sets, which suggests that they may have been proof or sample sheets, used to sell subscriptions for the published volumes. Kurth, a resident of Brooklyn, is listed in the city directories only in 1853-54.

12. Other addresses listed for Perris and his firm in the decade before his death include 93 William Street, 494 Broome Street, 13 Chambers Street, and 164 Fulton. Ms. Hudson has noted that a trade card pasted in the atlases from 1857 to 1868 indicates that a box for notes and orders was available at 14 Wall Street, Room 5 (Tradesmen's Insurance Co.), but it is not clear whether or not Perris maintained a formal association with the insurance industry.

13. Comparison of the volumes in this set owned by The New-York Historical Society with those in the Map Division of The New York Public Library suggests that mass-production techniques of some kind were used in coloring the maps. Although the intensity of the colors varies from page to page within a single volume, it is roughly uniform on the corresponding pages of the two sets.


15. Browne to Moore, October 2, 1874.
Map lovers appreciate and collect maps for their visual qualities, their powers of suggestion, and the information they convey. Each map conveys information on its own, but consider the multiplied effect of context. Scholars of cartographic history explore the temporal and cultural context of maps through contemporary documents and artifacts to better understand the maps and their contributions to the reconstruction of history and past geographies. When we build collections of maps we enhance the value of the collection, and of the individual maps, when we seek and select maps with geographical, cultural, and historical connections.

Such was the understanding and achievement of the late Lawrence H. Slaughter of Larchmont, New York, during the last twenty years of his life, with the consultation and assistance of New York map dealer E. Forbes Smiley III, in building a collection of maps, atlases, books, and globes focusing on the English mapping of colonial North America. The estate of Mr. Slaughter has recently given his collection to The New York Public Library’s Map Division with the intent, says Chief Alice Hudson, that it “remain intact, be used as a study collection, and benefit the library’s diverse audience.” The division, having been so honored, now has the responsibility to house, preserve, and make accessible to the public this fine assemblage of material.

What is the range of materials in the collection? What are some of its highlights? How do the components support each other and complement the existing collections in The New York Public Library? What is the nature of the existing access to the collection and what is planned for the future? What challenges does the cataloger face in enhancing the access with standard Anglo-American library cataloging? What existing literature will give guidance in meeting these challenges? What other projects are waiting to be accomplished to promote access, to promote cartobibliography, and to promote scholarship in English cartography, publishing, and the geography and history of English colonial America?

Mr. Slaughter, a computer systems expert at the United Nations and a supporter of The New York Public Library with roots in the Chesapeake Bay area and a love of travel, began by collecting early charts and maps of Chesapeake Bay and environs as well as city plans of Washington, D.C. His scope expanded to include the mid-Atlantic colonies in North America (from New York to Virginia, with some coverage of New England and the Southeast), predominantly during the 17th and 18th centuries, with a focus on the products of London publishers. Atlases, nautical pilot books, selected periodicals, and texts such as geographies, navigation handbooks, and treatises on the state of affairs in the colonies also became part of the collection. Some Dutch, French, German, and Italian maps of the colonies, derivatives of the English maps (figure 1), illuminate the diffu-
A pair of library globes, terrestrial and celestial, in elaborate wooden cradles completes the picture of this focused, yet well-rounded collection.

The collection of geographical information and the interrelationships of the map publishers in Europe. Maps of Eastern North America, the Americas in general, the West Indies, Europe, and the world, charts of the Atlantic Ocean, and celestial charts and atlases are additional complements. One characterization of the collection of maps describes them as falling into three categories: navigational tools, decorative maps, and maps created as historical illustration or documentation.²

Their formats range from miniature to folio atlases; from tiny maps that illustrated periodicals to maps detached from folio atlases; from collections of maps bound together, to separately published single and multisheet maps, large wall maps, and long, rolled, bluebacked nautical charts. The maps are, for the most part, printed copperplate engravings on paper, uncolored, with contemporary hand coloring, or with modern coloring. There are also woodcuts, manuscripts, maps on cloth, and a map on vellum. A pair of library globes, terrestrial and celestial, in elaborate wooden cradles, completes the picture of this focused yet well-rounded collection. The collection numbers nearly 600 maps, 100 atlases, and 50 books.

Some highlights include: The English Pilot, The Fourth Book, a standard aid to English navigators in the Atlantic waters of North America, in editions from 1689, 1706, 1713, and 1732, complementing the existing 1742, 1764, and 1794 editions in the Map Division; Mark Tiddeman’s Draught of New York from the Hook to New York Town, from one of a few specific editions of The English Pilot,

FIGURE 1. LHS 456, Carte du Canada et de La Louisiane qui Forment La Nouvelle France et des Colonies Angloises, ou sont representez les Pays contrefez. Dressée sur les observations et sur plusieurs cartes particulières et même Angloises
Par J.B. Nolin Geographe.
Paris chez Duquet, rue de la Fagonerie, à l'Aigle d'Or. 1756.
This example is an example of a non-English map with English sources in the Slaughter Collection. Lawrence H. Slaughter Collection, Map Division, The New York Public Library, Astor, Lenox and Tilden Foundations.
complemented by the existing George Grierson piracy of same in the Map Division; Edmond Halley's historic New and Correct Chart Shewing the Variations of the Compass in the Western & Southern Oceans ... 1700, with isolines, as well as later maps after Halley showing compass variations in, for example, 1744; nautical charts from Des Barres' Atlantic Neptune from the 1770s and 1780s, supplementing varying Atlantic Neptunes in the Map Division; a variety of later charts of the Atlantic and the east coast of North America, from the 1790s to 1850s, published by William Heather, Laurie and Whittle, Edmund Blunt, and J.W. Norie; two globes, as mentioned above, by John Senex, from circa 1720; Thomas Jefferson's Notes on the State of Virginia, in editions from Paris, 1785, London, 1787, Philadelphia, 1794, and Boston, 1801; John Mitchell's Map of the British and French Dominions in North America, 1755, first edition, second issue (the Map Division has what is thought to be a fourth edition), along with foreign editions and derivatives such as Antonio Zatta's from Venice, 1778, and Covens & Mortier's from Amsterdam, circa 1782; Bernard Ratzer's Plan of the City of New York, 1767, and John Montresor's Plan of the City of New York & its Environs, 1775, supplementing the well-handled copies in the Map Division; William Faden's Province of New Jersey, Divided into East and West, second edition, 1778, to complement the Map Division's first editions in Faden atlases and second edition facsimile; some early post-colonial works such as several plans of Washington, D.C., including both British and American imprints; many English atlases, including the works of John Speed, Richard Blome, Robert Morden, George Willdey, William Faden, and John Seller; and to show the mapmaking and publishing environment, John Rocque's large-scale Plan of the Cities of London and Westminster and Borough of Southwark, 1746.

Access to the Slaughter Collection in the Map Division so far has been manual, via a numbered classification scheme, a short-title list, and a one-page record for each item, prepared before the materials came to the library; and an author index prepared since the arrival of the materials. The classification system groups maps by geographical areas: District of Columbia, Chesapeake Bay, Maryland, Delaware, Middle Colonies, Carolinas, Southeast, Atlantic Ocean, Eastern North America, and so on. Books are in broad categories: Virginia books, English atlases, general books. The categories seem to reflect somewhat the way the collection developed, that is, the interests of the collector and the intended growth and limits of the collection at particular times. Unique numbers within the classification ranges are assigned to each item. Mark Tiddeman's Draught of New York, for example, is numbered LHS [Lawrence H. Slaughter Collection] 814, within the category New York Province/New York City, numbers LHS 801-850. The categories, under the heading of "Finding Aid," and the author list may be consulted by the public on the World Wide Web at: <http://www.nypl.org/research/chss/map/slauweb.html>. The short-title list, in draft form as of this writing, may be consulted at the Map Division reference desk.

More detailed records for each item were prepared by Messrs. Slaughter and Smiley, and will eventually also be available for consultation in the Map Division. These records approach what Robert Karrow characterizes as full level of detail in physical cartobibliography, concentrating on a single copy level of abstraction, but also including references to other known states and editions. Detailed title transcriptions, notes on watermarks, judgments on coloring and condition, derivation or comments on possible compilation sources, and auction and sale catalog references may be included...
SLUBJECT: New York; Long Island

TYPE: Battle plan

TITLE: The COUNTRY TWENTY FIVE MILES Round NEW YORK drawn by a Gentleman from that CITY / Published according to Act of Parliament, 21st November, 1776, by W. HAWKES; (Successor to T. KITCHEN) No. 59, Holborn Hill. Price ONE SHILLING (imprint below bottom neat line).

AUTHOR: Unknown

DATE: 1776

PUBLISHER: W. Hawkes

PLACE OF PUBLICATION: London

ENGRAVER: John Barber

PRINTING PROCESS: Engraving

SIZE: 16 3/8" x 16 1/2" (map) on sheet with letterpress 24 3/4" x 19 1/8"

SCALE: None

PAPER/WATERMARK: Medium weight laid / None

COLOR: uncolored

CONDITION: Worn at folds, restored.

ORIGIN: Published separately.

EDITION: Two editions, in various states.

First edition, First state: The dated line below map reads "Sep. 15. th, 1776. British Forces..."


First edition, Third state: Imprint dated 21st. Nov. 1776. Another line below map brings date to November 1, 1776.


DERIVATION: Original survey

COPY EXAMINED: LHS 806

RAREITY: Rare

CENSUS:

REFERENCES: Nebenzahl. ...Battle Plans..., #110
Stevens & Tree. "Comparative Cartography", 43.

LHS NUMBER: 806

PURCHASE: EFS III

PROVENANCE:

AUCTION/HARVEST:

CURRENT VALUE:

SALE:

COMMENTS: Full descriptive list of "Interesting Occurances"

FIGURE 2b. Library of Congress cataloging record from the Online Union Catalog of OCLC Online Computer Library Center.

The Library of Congress's Map Cataloging Manual touches on topics of concern in working with antiquarian materials. Research will be necessary to identify atlases and books from which maps have been extracted.

...consideration must be given to including detailed contents notes in catalog records, or creating "in" analytics.

may be included, in addition to basics of description such as statement of responsibility, imprint, size, scale, and origin or publication from which the map was extracted when applicable and known. See figure 2a for an example of a Slaughter-Smiley record for LHS 806, The Country Twenty Five Miles Round New York, 1776. For comparison sake, see figures 2b and 2c, for lesser levels of detail: a Library of Congress record for the same title as it appears in the Online Union Catalog of OCLC Online Computer Library Center; and a New York Public Library record for a later state of the map as it appears in the Dictionary Catalog of the Map Division. (The latter clearly predates widely accepted library cataloging rules in a machine-readable format.)

A happy medium of cartobibliographical description, the library catalog record, according to Anglo-American cataloging rules, accessible via library networks (OCLC and the Research Libraries Information Network) and via The New York Public Library's online public catalog, CATNYP, is what the Map Division will strive to provide now, for consistent control, description and near-universal access. The tools that we will depend on to guide us include: Anglo-American Cataloging Rules, 2nd ed. 1988 revision, Descriptive Cataloging of Rare Books, second edition, Cartographic Materials, a Manual of Interpretation for AACR2, Map Cataloging Manual, prepared by the Geography and Map Division, Library of Congress, and Robert W. Karrow Jr.'s Manual for the Cataloging of Antiquarian Cartographic Materials.

Karrow's Manual has guidance to help with such decisions as the "sometimes rather arbitrary" but necessary choice of determining primary responsibility from among the surveyor, the cartographer, the compiler, the engraver, the printer, the publisher, and so on. The Library of Congress's Map Cataloging Manual touches on topics of concern in working with antiquarian materials such as distinguishing between hand coloring and color annotation, and supplying dates when a date on a map differs from the date of the known atlas from which it comes. Sprinkled throughout Cartographic Materials, cataloging rule interpretations and applications consider the treatment of "early cartographic items." For example, the handling of dedications in titles and the inclusion of details relating to the publisher are questions that Slaughter Collection maps will raise, and that Cartographic Materials will help to answer. To the extent that materials in the collection raise questions that these manuals do not sufficiently address, good notes on the part of the catalogers can be valuable seeds of suggestion for a revised cataloging manual for antiquarian cartographic materials. Vick and Romero's article on "Cataloging Rare Maps" provides some insightful looks at the differences between rare books cataloging rules and cartographic materials interpretations of Anglo-American cataloging rules in Cartographic Materials, with some common-sense pointers on where to favor the rare books methods to maintain uniqueness of description for distinct publications.

With composite atlases such as two collections of George Willdey maps (LHS 322, 323), as well as atlases that lack plates or have extra plates inserted, consideration must be given to including detailed contents notes in catalog records, or creating "in" analytics. The "in" analytics, useful also for maps within text material and within standard atlases, are separate records for component maps, with a note or linkage to a record for the overall item in which the maps appear. It will be meaningful to create a record for "Plan de la Ville de Washington en Amerique," LHS 13 and 30, for example, not only for the Almanac de Gotha pour l'Annee 1795 as a whole, in which it appears. In addition to treatment of "in" analytics in Cartographic Materials, Karrow's
Manual provides guidelines and examples,19 and Vick has described a project, including examples, with application to the machine readable format of the OCLC database.20

Research will be necessary to identify atlases and books from which maps have been extracted, where the collector has not already provided that information. And for additional research leads, identification, and possibly more in-depth, comparative descriptions, the Map Division's catalog records should include references to existing published bibliographic descriptions of the antique maps we are cataloging. Vick and Romero's article has appended a "Selected Bibliography of Sources for Cartobibliographic Research," one example of a bibliography of sources that will serve these purposes.21

Part of the Slaughter Collection has come to The New York Public Library as an outright gift, and this segment will be cataloged first; part of the collection has been placed with the library on deposit, and will be cataloged contingent on its full donation to the library. In the meantime, these deposit items are still accessible by way of the author index and short-title references mentioned above. Searching of initial groups of gift maps and books in the OCLC database for shared library cataloging has yielded on the order of 50 percent hit rates for existing cataloging of editions matching those in the Slaughter Collection, and 20 to 30 percent hit rates for cataloging records of varying editions.

As the Slaughter Collection is cataloged, it will become part of the overall holdings of nearly 420,000 maps, 16,000 atlases, and 5,000 books that support the everyday reference and long-term research needs of the Map Division's 30 to 40 daily users. But the collection will also maintain its integrity. Its identity will become known not only through catalog records and general descriptions such as this article, but also through projects that it inspires. One of these is an exhibition of Slaughter Collection materials, "... in thy Map securely saile ...," curated by Chief of the Map Division, Alice Hudson, to be on view in The New York Public Library's Edna Barnes Salomon Room from October 10, 1998 to March 6, 1999. Another is the intended publication of the existing notebooks of detailed records of the collection's contents discussed above. The collection also lends itself to fostering continued progress on comparative cartobibliographical studies such as Stevens and Tree,22 and to making possible additions and corrections to published bibliographies as suggested by Karrow.23 The Lawrence H. Slaughter Collection of English Maps, Atlases, Books and Globes is not only an exemplary group of related cartographic materials, but it is also an invitation: it beckons scholars, map librarians, and the interested public to come to The New York Public Library to take advantage of the collection in the most positive sense, so that it may support their research.

NOTES


2. Ibid.


4. Also at the site is a background reading list on English mapping.


13. Ibid., section 2.1.


17. Almanac de Gotha pour l'Année 1795 (Gotha: chez C.W. Ettinger, 1794?).


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The Enigmatic Topographic Maps of the U.S. Coast Survey, 1834-1861

David Yehling Allen
Map Collection
State University of New York at Stony Brook

Abstract
During much of the nineteenth century, the U.S. Coast Survey produced topographic maps as well as nautical charts. Its topographic maps were the first detailed and accurate maps of extensive inland areas produced by the U.S. government. Because of their relative accuracy and early date, they are an important source of information for historians, archaeologists, and others interested in the past.

This article reviews the development of Coast Survey topographic mapping under its first two directors, Ferdinand Rudolph Hassler and Alexander Dallas Bache. The purpose and extent of these land-based surveys is discussed. Problems in the interpretation of early Coast Survey manuscript and printed maps are explored.

During the nineteenth century the U.S. Coast Survey did more than its name implies. The Coast Survey was the direct ancestor of the U.S. Coast and Geodetic Survey, and hence of the present National Ocean Service. These latter agencies have been primarily responsible for producing nautical charts and other hydrographic products. Given its name and its legislative mandate—to survey "the coasts of the United States"—this is exactly what one would have expected the Coast Survey to have done. But under its first two directors, Ferdinand Rudolph Hassler and Alexander Dallas Bache, the Coast Survey carried out a much wider range of activities. In particular, it produced the first detailed and accurate topographic maps made in the United States. These maps ranged up to fifteen miles inland from the coasts and major rivers. Initially, manuscript surveys made under Hassler in the 1830s and early 1840s were the first to appear. Radiating out from a baseline on Long Island, New York, they covered, by the time of Hassler's death in 1843, some 9000 square miles between Point Judith in Rhode Island and Cape Henlopen at the mouth of Delaware Bay. These maps were drawn at scales of 1:10,000 for areas immediately on the coast and 1:20,000 for areas farther inland.

After the death of Hassler, many of these manuscript surveys formed the basis for printed maps published under Bache. Bache rapidly extended the activities of the Coast Survey to cover the coastal regions of the entire United States. But he also refocused its activities, and confined them more closely to charting coasts and harbors. Significant topographic mapping continued under Bache, however, and was even expanded to rivers and other inland areas during the Civil War. Only after the formation of the United States Geological Survey in 1879 did the Coast Survey finally come to confine itself largely to producing nautical charts.

The topographic maps of the Coast Survey were the innovation of Hassler. The importance of Hassler for the history of American science, particularly geodesy and cartography, has been widely recognized. Prior to Hassler, American surveyors made practically no use of such instruments.
as the theodolite or the plane table, and they lacked the mathematical skills to carry out such operations as correction for the curvature of the earth. Hassler was trained in the art of surveying in his native Switzerland. His mentor was Johann Georg Tralles, a distinguished German mathematician and surveyor. Together with Tralles, the young Hassler carried out a survey of the Canton of Bern, and soon acquired a European reputation. After he emigrated to the United States in 1805, he was selected by Thomas Jefferson in 1807 to head the nation's first mapping agency. The Coast Survey had a stormy history—it was completely suspended between 1818 and 1832—and it was not until the 1830s that serious mapping got underway.

Not the least enigmatic thing about Hassler's topographic maps is that they were made at all. As will be seen, they were enormously detailed, and Hassler was frequently criticized for wasting time and taxpayers' money on these minute surveys. Of what use were they to shipping and commerce? Hassler's critics argued that he should have confined himself to mapping headlands and coastal landmarks, and focused the Survey's efforts on its hydrographic activities. Hassler stoutly defended his inland mapping as "absolutely necessary" for charting the coasts, but never convincingly explained why. He maintained that restricting surveys to three miles from the coast would amount to "a virtual abolition of the work itself," adding that his guiding principal was that the "topography must go to the ridge of mountains which determine the heads of the coasting rivers, or creeks, or their passage through such mountains."6

There still remains the question of exactly why Hassler spent so much time and effort on topographic mapping? The explanation probably lies in a combination of motives. Hassler's attitude in this respect may have been influenced by his training in continental Europe, and he may have yearned to rival national surveys like the British Ordnance Survey. With his continental background, he did not share the widespread Jeffersonian suspicion of an activist federal government; he took it for granted that surveys should "enable the government to judge with propriety of the plan of any public undertaking or service, such as roads, canals, means of defence of the country, etc."7

A hidden agenda may have even played a role in the decision to undertake and continue topographic mapping. Such maps have considerable military value, and their usefulness would be proved during the Civil War. Also, Hassler had been a professor at West Point and many of his assistants were army or navy officers. This is not to suggest that these maps were hatched by a military conspiracy, but it may not be far-fetched to speculate that an awareness of their military potential may have influenced the decision to go ahead with them in spite of strong opposition. The advocates of military mapping would have had good reason not to publicize their intentions, for they would have encountered opposition from the friends of "states' rights." Hassler himself said little about the military value of his topographic maps, but he may have tipped his hand when he wrote to the Secretary of State in 1832: "A proper Survey of the Coast must embrace, not only all that relates to the navigation of the Coast, but also all the data required for directing its proper defence [sic.], &c. &c. from the cabinet in Washington."8 And as early as 1843 a plan for the reorganization of the Coast Survey was adopted that specified that the "topography should be carried so far inland as might be necessary for a proper delineation of the shore, and for purposes either of commerce or of defense."9 In 1858, a committee of the American Association for the Advancement of Science, which had been constituted to evaluate the Coast Survey, cited the importance of its topographic mapping for national...
In measuring baselines, he was careful to compensate for such things as the thermal expansion of the metal measuring rods and the effect of the curvature of the earth's surface.

These triangles were used as a framework to locate precisely the details drawn by separate hydrographic and topographic surveying parties. The procedures established by Hassler were essentially those followed by the Coast and Geodetic Survey until the 1920s.

FIGURE 1. Detail from U.S. Coast Survey, Sketch B., No. 2, Showing the Triangulation & Geographical Positions in Section No. II from New York City to Point Judith [map], 1:400,000, 1851, in U.S. Senate, 32nd Congress, 1st session, Report of the Superintendent of Coast Survey, 1851, Charts, S. Ex. Doc. No. 3 (Serial Set No. 616). Triangulation network in New York area. Hassler's original baseline on Fire Island defense, and even gathered a testimonial from the head of the Army Corps of Topographic Engineers about the vital military importance of Coast Survey maps.¹⁰

Whatever the reasons for their production, the topographic surveys made under Hassler were extremely accurate. Hassler introduced to the United States the highest standards of contemporary European mapping. His maps and charts were the result of meticulous surveys, similar in method to the British Ordnance Survey. His technique involved the painstaking measurement of baselines using carefully calibrated steel rods. In measuring baselines, he was careful to compensate for such things as the thermal expansion of the metal measuring rods and the effect of the curvature of the earth's surface. From these baselines, he constructed a network of triangles using theodolites and other precision instruments, many of which he had specially constructed in Europe (Figure 1).
exact location of roads, fields, and buildings, as well as of old river and shoreline patterns.

But these manuscript surveys are often difficult to interpret, and there is little information available on how to read them. Although a fair amount has been written about the institutional history of the Coast Survey, only Aaron Shalowitz’ Shore and Sea Boundaries deals extensively with the interpretation of Coast Survey maps, and Shalowitz says little about its manuscript surveys.11 The secondary literature mirrors a dearth of information in the primary sources.

There is no shortage of primary source material on the early years of the Coast Survey. Its extensive annual reports were printed in the Congressional Serial Set. Several volumes of documentation were published by Hassler himself.12 A number of other works contain additional documentation, and there is a considerable body of unpublished sources housed in several archives.13

Much of this material makes tedious reading. The bulk is taken up by correspondence with auditors, politicians, job seekers and bureaucrats. Hassler was preoccupied with defending himself against charges of malfeasance and with attempting to obtain funds for the Survey. These tasks were not made easier by Hassler’s prickly and eccentric manner, by his foreign accent, or by his highly developed sense of self-esteem. In one frequently retold but revealing incident, Hassler was allegedly approached by his superior, the Secretary of the Treasury, and asked to justify his high salary. When the Secretary pointed out that Hassler’s salary was equal to that of the Secretary of State, Hassler replied: “True, precisely as much as the Secretary of State, and quite as much as the Chief of the Treasury; but do you know Mr. Secretary that the President can make a Minister of State out of anybody—he can make one even out of you, sir, but if he can make a Hassler, I will resign my place.”14 Hassler impressed his subordinates as knowledgeable and conscientious, but also as being a poor administrator, who was overly meticulous, willful, eccentric, and unwilling to delegate responsibility.15 Under these circumstances it is not surprising that the Coast Survey published only a few minor harbor charts during his lifetime. The slow pace of his surveying greatly aggravated the opposition to him. As at least one commentator has pointed out, the willingness of Congress to fund at a high level an agency headed by such a man is a testimony to the much deprecated commitment of Jacksonian America to scientific research.16

A small percentage of these published and manuscript sources do, however, deal with scientific matters. They are primarily concerned with the instruments and techniques Hassler used to carry out his triangulations, and with justifying Hassler’s methods over allegedly speedier and less costly alternatives proposed by rivals. Some of the instructions that Hassler wrote for his assistants are recorded. But, as will be seen below, it was not until around 1840 that Hassler developed anything resembling a key or legend for the Survey’s topographic maps. There is good reason to think that Hassler never provided much guidance for his assistants in this area. This is surprising coming from such a meticulous and autocratic person. Hassler himself remarked early regarding the need to adopt “an universally understood conventional language of signs, and manner of distinguishing the objects, which appears not yet much known in this country....”17 But the surprise is somewhat mitigated when one recalls that the use of standardized map symbols was not as common in the early nineteenth century as it later became. Most of what standardization existed derived from a kind of intellectual diffusion between mapmakers who participated in what Brian Harley has called a common “European military map culture.”18 Even
the early editions of the British Ordnance Survey maps lacked a legend. But many contemporary maps did have legends, and Hassler's casualness in this regard remains something of a puzzle and a minor enigma.

For the lover of enigmas, however, the real challenge comes when attempting to decipher the maps themselves. This requires considerable detective work to piece together the clues for their interpretation. A few bits of information provided by Hassler himself are helpful and one is his reliance on plane tabling.

Hassler himself explains quite clearly the rationale for using the plane table:

> The fully minute detail topography, forming the filling up of all the preceding operations [primary and secondary triangulations], will be made best, and more quickly, by the plane-table, which, for this purpose, has peculiar advantages; presenting to the surveyor the land, at the same time that he makes his geometrical delineation of it; dispensing him from loading his memory or note-book with details that can never be so accurate as the actual aspect; besides that, any accidental omission or mistake can be corrected immediately, which would lead into difficulties, in the habitual way of plotting from field books. To these surveyors the triangulation is given accurately upon the papers which they have to fill up; and for this purpose, the projection of the triangles must be peculiarly adapted; under this guidance, no error can occur without being immediately detected, before it has become of influence; thence, also, the surveyor works with great security and consequent celerity, relieved from all anxiety as to his results, because all distances are given to him.

The use of plane tabling helps account for the accuracy of the Coast Survey maps, but the lack of reliance on field notes had regrettable consequences for historians. Such notes would have been invaluable in interpreting the maps, and might have provided considerable additional information of historical interest.

The maps themselves are thus the most important source of information for their interpretation. Under Hassler, 168 manuscript topographical maps were surveyed between 1834 and 1843. Their interpretation is facilitated by each sheet bearing the year when it was surveyed and the names of the assistants responsible for the topography. This makes it easy to examine their chronological development, and to look for differences between cartographers.

The use of the plane table was practically unknown in America at that time. In establishing his surveying parties, as elsewhere, Hassler drew upon European talent. At first he had only a single person he deemed competent to lead a plane table party. This was Charles Renard, another Swiss emigrant, who had worked with the French topographical survey. Slowly Renard and other European born cartographers trained a corps of American surveyors. It is important to keep the continental origins of Hassler and the leaders of his early survey parties in mind when searching for clues to the interpretation of their maps. Swiss, German or French cartographic conventions were as likely to be adopted as British models.

A comparison of the maps strengthens the impression that Hassler provided little direction to his assistants on how to carry out their surveys. Only a few types of features are depicted consistently on all of them. These include such basics as roads, the location of buildings, and the shapes of shorelines, lakes, and rivers. There is little use, even by nineteenth-century standards, of conventional symbols for such structures as mills, churches, and schools. Sometimes the purpose of such buildings is labeled; occasionally symbols are used; and sometimes the user has to deduce their function by comparison with other maps and records. Some sheets had modest amounts of color coding; most were
black and white. Both the inconsistencies and the tendency to avoid conventional symbols are evidence that Hassler's surveyors were not provided with a legend to follow.

The variation among sheets, both in terms of the type of information provided and the way it was shown, rouses the suspicion that Hassler's assistants consciously experimented with methods of depicting natural and cultural features. They seem to have tried out new techniques and ideas as they went along. Some of the discrepancies show chronological development; others reflect differences in approach by various cartographers; and still others occur for no ascertainable reason. This unevenness makes the maps a showcase of cartographic techniques as they existed in the 1830s, but it is also the main cause of the difficulty of interpreting them.

In general, the earliest topographic sheets contain relatively little detail, and the maps become more elaborate in the course of the 1830s. But some of the later maps are radically simplified, perhaps because their makers were under pressure to work quickly. Inconsistency is notably apparent in the identification of homeowners. On most sheets, only the names of a few leading citizens appear next to individual houses. These houses were usually easily recognizable landmarks, and were sometimes used to identify the location of survey points (the ancestors of "bench marks"). Some assistants, however, made conscientious efforts to name most or all homeowners. On several sheets the names of white homeowners are carefully recorded, but houses belonging to blacks are labeled only "negro."—an interesting if disagreeable comment on American values at that time. In general, there is more use of conventional symbols on the later sheets, but here, too, there is much inconsistency. Thus, on some sheets barns and other outbuildings are shown as hollow rectangles to

There is a case in which a surveyor used a symbol to indicate water mills on one sheet, and omitted the symbol and labeled the mills on an adjoining sheet made a few months later.

FIGURE 2. Detail from T.A. Jenkins and J.B. Glück, "Bridge Hampton to Acabonack and East Hampton" [: MS. map], 1:10,000, 1838 and 1846 (register no. T-74). Courtesy National Archives. Houses are shown as solid rectangles, outbuildings as hollow rectangles. A conventional symbol for a windmill appears at upper right. Contour lines appear to have been added in red ink in 1846.

differentiate them from dwellings, which are depicted as solid blocks (figure 2). But this convention is not used on most sheets. There is another case in which a surveyor used a symbol to indicate water mills on one sheet, and omitted the symbol and labeled the mills on an adjoining sheet made a few months later. Generally, the function of important buildings is labeled, as is the case with Eli Whitney's gun factory in Figure 3. Where symbols do appear, they can usually be deciphered by comparing them with keys to other maps of the period. But a few cases are so puzzling that I have been unable to make sense out of them.

The treatment of relief on these maps is particularly interesting. On a number of sheets, generally showing fairly level areas, no attempt whatsoever was made to depict relief. Some of the early sheets use hachures of the classical "hairy caterpillar" type. Such hachures show the location of hills, but do not depict elevation in any systematic way. As early as 1837, however, contour lines begin to appear (Figure 4). On several sheets contour lines were penciled in over "hairy caterpillar" hachures. Soon thereafter a technique of what might be called "layered hachures," or "contoured hachures," was adopted. In this technique hachures were slightly offset or separated by white lines at regular contour intervals, and steepness of slope indicated by the heaviness of the hachures (Figure 5). In several early works on the Coast Survey, this system of hachuring is described as an adaptation of the "Lehman" or "Lehmann" system. This is a remarkably sophisticated method for depicting topography developed by a German named Johann Georg Lehmann, which was modified in the 1820s and made available to those unable to read German by William Siborne, a British military engineer. Individual manuscript maps of the late 1830s and early 1840s sometimes reveal how the...
FIGURE 4. Detail from C. Renard, "Harlem River and Throgh Neck, New York" [1: MS. map], 1:10,000, 1837 (register no. T-15). Courtesy National Archives. Note the differences in style in the depiction of woods and wetlands between this map and the earlier map by Renard shown as figure 6.

FIGURE 5. The New Jersey Railroad enters the Raritan Valley near New Brunswick. A good example of "contoured hatchures." Detail from T.A.M. Craven, "Part of New Jersey" [1: MS. map], 1:10,000, 1840 (register no. T-135). Courtesy National Archives.
Conversely, several surveyors made elaborate attempts to show what was growing in particular fields. Contour lines were converted into layered hachures (Figure 5). On some maps, spot heights are also shown. A comparison with modern topographic maps shows the spot heights to be quite accurate, but the contour lines conform only roughly with the contours on modern maps. The contour lines run at intervals of approximately 10 feet on 1:10,000 scale maps and 20 feet on 1:20,000 scale maps. (Eventually the Coast Survey adopted a standard 20 foot interval for its printed maps.) This use of contour lines marks a notable advance in American cartography. They are among the first to appear on American maps, and it would be decades before contour lines were generally adopted as the standard means of depicting relief.\(^{32}\)

Another fascinating feature of these maps is their depiction of vegetation, both natural and cultivated. Here, too, there is great inconsistency between maps. Natural vegetation is shown by a variety of symbols. These are usually easy to interpret, and the symbols are often similar to those used today. In cases of doubt, symbols can usually be identified through comparison with present vegetation. But the symbols themselves can be quite inconsistent. At least four different, seemingly interchangeable, symbols were used to depict both fresh and saltwater wetlands vegetation. Wooded areas were usually shown by an easily recognized conventional symbol (see Figure 6), although on some maps this symbol was used only on the edges of wooded areas, and on a few sheets woods were not drawn in at all. And just to provide variety, one surveyor used a completely different symbol for this purpose on several sheets.\(^{33}\)

An interesting feature on some of the Long Island and New Jersey maps was the use of tiny drawings of pine trees to show areas dominated by pitch pine (Figure 7). In one area of Long Island, known as the Dwarf Pine Plains, which is dominated by trees no more
FIGURE 8. Detail from Th. W. Werner, "Part of the North Shore of Long Island" [MS. map], 1:10,000, 1837 (register no. T-34). Courtesy National Archives.

FIGURE 9. Detail from Fr. H. Gerdes, "Part of Long Island Shore from Old Landing to Coopers Hills, on the Sound" [MS. map], 1:10,000, 1838 (register no. T-54). Courtesy National Archives.
than a few feet high, these symbols for coniferous vegetation were drawn noticeably smaller. Still other easily recognized symbols were used to show brushy areas and grasslands. There are probably some further surprises in the depiction of natural vegetation, which have yet to be uncovered by local historians. In his instructions to surveyors, written around 1840, Hassler specified that different kinds of “wood or timber” should be “attended to in the finished drawing of the maps.” However, except for distinguishing between coniferous and deciduous trees, this was almost never done. I have, however, found one or two exceptions, and more probably exist.

The depiction of cultivated crops is another unusual feature of some of these maps. Here, too, nothing should be taken for granted. On most sheets field boundaries are carefully drawn in, although there is no indication of what was planted in them. On some sheets, though, there is no evidence whatsoever that cultivated fields existed in areas where they can be shown to have been present. Conversely, several surveyors made elaborate attempts to show what was growing in particular fields (Figure 8). In the case of orchards, a widely used contemporary symbol can be found. The symbols used for individual crops, which appear to vary from sheet to sheet, are almost impossible to identify—although an effort could be made to match them up with contemporary documents, such as agricultural census records. The interpretation of these crop symbols is complicated by the practice of some topographers who used different forms of cross-hatching to set off fields from each other. This makes it difficult to define whether a particular mark is being used to indicate a crop or if it is being used for aesthetic purposes. On one unusual sheet, an attempt even seems to have been made to show what was growing in backyard gardens (Figure 9). The effort to identify individual crops was carried on by the Coast Survey well into the twentieth century, and standardized symbols were eventually used to identify certain crops, including cotton, rice, and corn. The use of crop symbols is not unique to Coast Survey maps, although it is unusual. Since farmers frequently change their crops, thereby often rapidly making this feature of the maps out-of-date, it is easy to see why this practice never became widespread.

After 1840 the Coast Survey manuscript maps became progressively more standardized and easier to decipher. About 1840 Hassler issued, apparently for the first time, a set of “Instructions for Chiefs of Plane Table Parties,” which refers to a printed sheet of conventional symbols that appears to have been issued at about the same time. These documents, which were quite brief, by no means put an end to the differences between individual sheets, but they at least began the process of standardization. More elaborate sets of symbols were published in 1860 and thereafter.

The engraving and publication of maps also helped further the development of a standardized product. Under Hassler only eight maps and charts were published, and they depicted minor harbors. Five highly detailed large-scale maps were engraved and almost ready to be published by the time of Hassler’s death in 1843. By 1860 some 278 maps and charts had been published, many on the basis of Hassler’s surveys. In addition, numerous preliminary maps—called “sketch maps” were printed in the Congressional Serial Set accompanying the annual reports of the Coast Survey. A number of the more detailed printed maps are cartographic masterpieces, and well worth study in their own right. They also shed considerable light on the manuscript maps from which they were derived.

The maps published in the 1840s and early 1850s are of particular interest, for many were based on surveys done under Hassler. They
bear the names of Hassler's topographical assistants and are the most informative about the earlier manuscript maps. These engraved maps include a number of charts of individual harbors and inlets, mostly at scales of 1:20,000, 1:30,000, or 1:40,000. Maps of larger coastal areas were published at scales of 1:80,000 or less. Several of the most interesting of these charts are widely available, for good facsimiles were published by NOAA in 1976 as part of the bicentennial celebrations.

The most spectacular and revealing of the early printed maps is a six-sheet Map of New York Bay and Harbor and the Environs published at a scale of 1:31,000. This map is noteworthy for a number of reasons. First, it was virtually finished at the death of Hassler, and provides a clear indication of the use Hassler intended to make of the detailed topographic surveys conducted under his direction. It includes not only the immediate area around New York Harbor, but also Brooklyn, Staten Island, parts of New Jersey, and much of western Long Island. It is one of the few large-scale maps published by the Coast Survey that includes sizable amounts of land well away from the shore, and one of the few cartographic productions of the Coast Survey that is labeled a "map" rather than a "chart."

There are some interesting and revealing differences between the published map of the New York area and the manuscript maps upon which it was based. Some of these differences help explain why Hassler took so long to publish the results of his surveys. There are more place names on the published map than on the manuscript maps. One of the few items of correspondence between Hassler and his assistants relating to these topographic maps shows that they had to make considerable last minute efforts to augment the place names on the manuscript maps prior to publication. A comparison of the manuscript and printed maps also indicates that considerable additional work went into producing the printed version. Field boundaries are shown on the printed map in areas where they are omitted on the manuscript maps. And symbols are changed and made uniform—an indication that the process of turning variegated manuscript maps into a product usable by the public in itself furthered the use of standardized topographic conventions.

Hassler's New York Harbor map far exceeds in both accuracy and amount of information any earlier map published in the United States. For that matter, it contains more information per square inch than most modern topographic maps. It is a magnificent portrait of the New York area around 1840. The wealth of detail depicted on the map is indicated by the segment reproduced as Figure 10. Relief is shown by the previously mentioned technique of "contoured hachures," although the contour intervals are difficult to perceive at this scale. Individual houses are shown outside of urbanized areas, but the names of their owners are omitted. No effort is made to distinguish between houses and outbuildings. Both wooded areas and wetlands are indicated by symbols quite different from those used on most of the manuscript maps. Field boundaries are carefully delineated, but no attempt was made to distinguish between crops. The various markings used on different fields in Figure 10 are intended merely to distinguish one field from another. There is almost no use of symbols to indicate the function of human structures, with a few exceptions, such as bridges and railroads. But factories, race courses, and other large buildings are often labeled.

Considering both the amount of area covered and the density of detail, none of the subsequent topographic maps issued by the Coast Survey in the period before the Civil War quite match Hassler's map of the New York area. Cartographic masterpiece though it was, the six sheet New York map—which did contain hydro-
Coast Survey parties accompanied the Union army in its operations and produced numerous maps and charts of the South. These 1:80,000 charts are quite detailed for their scale...

Although the general direction of the Coast Survey's mapping in the years immediately preceding the Civil War is away from Hassler's approach, there are some interesting exceptions to this trend. Detailed topographic surveys continued to be conducted under Bache, although they did not range as far inland as under Hassler. A number of maps and charts of individual harbors were published at scales of between 1:10,000 and 1:40,000. These large-scale harbor charts often contain a great deal of topographic information. They are of interest not only in their own right, but, where they cover areas mapped in manuscript under Hassler, they shed considerable light on the manuscript maps produced by Hassler's assistants.

Several large-scale topographic maps based solely upon work done under Bache are also noteworthy. One is a spectacular map of Boston Harbor at a scale of 1:40,000 published in 1857. This map ranges as much as three miles inland and includes areas far to the north and south of Boston proper. It is highly detailed and resembles the 1844 New York Harbor map. It ranks just behind the earlier map as a cartographic masterpiece.

Another notable map was produced in 1853, and shows the City of San Francisco at a scale of 1:10,000. This map makes no pretense of serving a navigational purpose. It is primarily a map of the city itself; it goes so far as to provide street names, and includes a table of reference for public buildings. Appropriately enough for a map of hilly San Francisco, it is the first printed Coast Survey map to use contour lines. The relief is depicted quite conscientiously. The contour lines are at twenty foot intervals and the elevation of each contour line is noted.

The Boston and San Francisco maps show that Bache and his assistants were not averse to producing topographic maps when opportunity arose. It is surely no coincidence that the politically astute Bache had these elaborate maps made of two widely separated urban areas, where they were sure to appeal to local pride and
garner political support. Not one to leave political bases untouched, Bache also published in 1853 a handsome map of Charleston Harbor with a great deal of topographic detail. The map bears the inscription “reduced from the original presented to the Charleston Chamber of Commerce.” Bache was truly a scientific entrepreneur in the grand style—a distant predecessor of such twentieth-century magnates of “big science” as Teller and Watson. Appropriations for the Coast Survey, which was already the best funded civilian agency under Hassler, increased under Bache from $100,000 in the early 1840s to $489,537 in 1854.

Although the printed maps produced by Bache are generally easy to interpret, they still contain some quirks and inconsistencies. In 1860 the need for further standardization was recognized by the issuance of a publication entitled “Rules for Representing Certain Topographical and Hydrographic Features on the Maps and Charts of the United States Coast Survey,” which was appended to the Coast Survey’s Annual Report in 1860.

Although considerations of length make it necessary to end this article with the Civil War, the war did not mark the end of the Coast Survey’s topographic mapping. Many people thought when the war broke out that the agency would be disbanded and its cartographers dispersed to the military. But they underestimated the political virtuosity of Bache. A number of Coast Survey charts of harbors in the South quickly proved the military value of the accurate maps produced by the Coast Survey. With its large pool of trained cartographers, the Survey quickly became the leading federal military mapping agency, overshadowing the poorly organized Army Topographic Engineers. Coast Survey parties accompanied the Union army in its operations and produced numerous maps and charts of the South. Many of these can be seen in the Official Atlas of the Civil War. Some of these Civil War maps are quite different in style from previous Coast Survey productions. The differences in form and function of much of the mapping done by the Coast Survey during the Civil War make it convenient to end this story with the event at Fort Sumter.

Even after the end of the Civil War and the death of Bache in 1867, the Coast Survey continued to produce topographic maps. The most important inland mapping of the immediate post-war years was, however, conducted by the Wheeler, Hayden, and King surveys, which were eventually consolidated to form the U.S. Geological Survey. But even as late as 1878 Congress considered a proposal developed by the National Academy of Sciences to make the Coast Survey the official national mapping agency, and to rename it the Coast and Interior Survey. A fragment of this proposal is reflected in the renaming of the agency the Coast and Geodetic Survey, and in assigning it the role of providing the geodetic framework for U.S.G.S. maps. But with the consolidation of the Geological Survey under Powell in the following decades, the inland activities of the Coast Survey waned, and by 1900 its mapping was largely restricted to the production of nautical charts.

NOTES
1. “An Act to Provide for Surveying the Coasts of the United States” (Feb. 10, 1807), U.S. Statutes at Large, 2:413.
3. There is no universally accepted definition of what constitutes a topographic map. However, the maps discussed in this article meet all of the generally accepted criteria, including: detailed depiction of relief, uniform scale, derivation from field surveys. A number of definitions of topographic maps have been collected by Mary Lynette Larsgaard, *Topographic Mapping of the Americas, Australia, and New Zealand* (Littleton, Colorado: Libraries Unlimited, 1984), 3-5.


4. Index maps and bromide prints of these and later surveys are available from: Director, National Ocean Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20852. Attention: Physical Science Services Branch, C513. The original manuscript maps are housed at the Cartographic and Architectural Branch of the National Archives and Records Administration, as part of Record Group 23.


10. American Association for the Advancement of Science, *Report on the History and Progress of the American Coast Survey up to the Year 1858 by the Committee of Twenty Appointed by the American Association for the Advancement of Science at the Montreal Meeting, August, 1857* (Cambridge, Mass.: n.p., 1858).


13. The most important collection of unpublished sources is in Record Group 23 at the National Archives. A significant body of Hassler’s correspondence is in the Ford Collection at New York Public Library.


17. *Principal Documents* (1834), 176.

19. For a reconstruction of the symbols used in the early Ordnance Survey, see the introduction by J.B. Harley and Yolande O'Donoghue to the first volume of The Old Series Ordnance Survey Maps of England and Wales, Scale 1 Inch to 1 Mile: A Reproduction of the 110 Sheets of the Survey in Early State in 10 Volumes (Lymnpete Castle: Harry Margary, 1975-89), xviii.


21. Hassler, Principal Documents (1834), 78.

22. According to Shalowitz, the earliest descriptive reports accompanying topographic maps date from 1863; they became standard in 1887. See Shore and Sea Boundaries, II:86.

23. An interesting description of surveying with Renard can be found in Sands, From Reeler to Rear-Admiral, 96-100.

24. The Coast Survey Annual Report for 1851 lists 3240 of these "geographical positions." U.S. Senate, 32nd Cong. 1st sess., Annual Report of the Superintendent of the Coast Survey, S. Doc. 3 (Serial Set No. 619), 162-442. The early Coast Survey was inconsistent in the way it identified survey points. In many cases, prominent landmarks, such as church spires, were used. In unpopulated areas survey points were marked in a variety of ways. These points are identified on the sketch maps printed in the Congressional Serial Set.

25. See Hugo L. Dickens, "Part of the Interior of Long Island" [: MS. map], 1:20,000, 1836-38 (register no. T-45). Also Hugo L. Dickens, "Part of the Interior of Long Island" [: MS. map], 1:20,000, 1838 (register no. T-77). Coast Survey manuscript maps were checked in on registers and assigned numbers beginning with T (for topographic maps) or H (for hydrographic charts). These numbers are used on the indexes published by the National Ocean Survey, and are the generally recognized means of identifying the maps.

26. See T.A. Jenkins and J.B. Glück, "Bridge Hampton to Acabonac and East Hampton" [: MS. map], 1:10,000, 1838 surveyed 1846 (register no. T-77). Also B.F. Sands "Map of a Part of the State of New Jersey from Eaton-Town to Lawrences Brook" [: MS. map], 1:20,000, 1840 (register no. T-122).

27. Compare F.H. Gerdes, "Part of Long Island from Riverhead to the Sound" [: MS. map], 1:10,000, 1838 (register no. T-53) with "Part of the Long Island Northshore from Coopers Hill to Oysterpond Point" [: MS. map], 1:10,000, 1838 (register no. T-55).


29. For example, Hugo L. Dickens, "Part of the Interior of Long Island" [: MS. map], 1:20,000, 1836-38 (register no. T-45).

30. Davis, Coast Survey, 24; American Association for the Advancement of Science, Report on the History and Progress of the American Coast Survey, 35.

31. Lehmann was the author of such works as Darstellung einer neuer Theorie der Bezeichnung der Schiefen Flachen (Leipzig: Arnoldischen Buch- und Kunsthandlung, 1799). His system of depicting relief was used by the military cartographers of Prussia, Saxony, Austria, and Russia.

32. See Larsgaard, Topographic Mapping, p. 17.


34. Shalowitz, Shore and Sea Boundaries, II:167.

35. For example, fields are omitted in what was then a heavily agricultural area on T.A. Jenkins, "Map of the Interior of Long Island From Brooklyn to Jamaica [sic.]" [: MS. map], 1:20,000, 1837 (register no. T-36). This should be compared with the printed 1844 Coast Survey map of New York and environs (discussed below), which depicts numerous fields in this area.


37. Both documents are reproduced in their entirety by Shalowitz, Shore and Sea Boundaries, II:165-68 and 196.

38. The evolution of these symbols is traced in Shalowitz, Shore and Sea Boundaries, II: 192-210.

39. The Coast Survey frequently issued catalogs of its published maps and charts, often in its annual report. These are listed in U.S. Coast and Geodetic Survey, Library, List and Catalogue of the

40. These lithographs of early engravings are in a series with numbers beginning "BiC." The only maps in this series still in print are two maps of Washington D.C. The charts of individual harbors and waterways are also well worth examining because they are more detailed than the 1:80,000 scale charts. One of the most detailed and interesting of these charts was published in facsimile as "BiC-13." This is: U.S. Coast Survey. Hell Gate and its Approaches [facsimile], 1:5000 ([Washington, D.C.?]: U.S. Coast Survey, 1851); as reproduced by, U.S. Dept. of Commerce, National Oceanic and Atmospheric Administration, National Ocean Survey, 1976.


42. Gerdes to Hassler, Aug. 30, 1843, Hassler papers, Ford Collection, New York Public Library.

43. The symbols used for setting off different cultivated fields appear to distinguish individual crops, but these variegated lines are identical with the symbol for "cultivated fields in general" in the U.S. Coast and Geodetic Survey 1928 Topographic Manual, 110.


45. U.S. Coast Survey, City of San Francisco and its Vicinity [map], 1:10,000 ([Washington, D.C.?]: U.S. Coast Survey, 1852). A facsimile of this map is available from Historic Urban Plans.

46. U.S. Coast Survey, Map of Charleston Harbour [map], scale not given, ca. 1:70,000 ([Washington, D.C.?]: U.S. Coast Survey, 1853). This map is reproduced in Guthorn, United States Coastal Charts, 120. It should not be confused with the more detailed Preliminary Chart of Charleston Harbor and its Approaches [map], 1:30,000 ([Washington, D.C.?]: U.S. Coast Survey, 1855).


Bibliographic Note

The Map Division in Press: More Than Fifteen Seconds of Fame

Alice Hudson, Chief
Map Division
New York Public Library

Reading more about the local map library may not seem like much fun, and a bibliographic note may just seem like so much smoke...but some fun things have been written about the map collections at NYPL.

Among the earliest is an article from The New York Times, April 7, 1900, p. 227, describing the Map Room at the old Lenox Library building, prior to the construction of the new building in 1911. The article describes an exhibit put on by the newly created Department of Maps, and states “The subject of maps, within recent years, has been attracting more attention, and many collectors now take pride in making it one of their favorite hobbies.” In the same article, Mr. Letts, the map curator, estimated it would take 200 years to finish the topographic mapping of the U.S. He was describing the old 15' survey! (Oddly, very oddly, Thomas Letts' portrait appears on a 1646 facsimile map of Manhattan, apparently published by the Library, or perhaps Mr. Letts himself! Why do I not think I could get away with that today?)

By the roaring twenties an article appeared in the New York Tribune, Sunday, February 3, 1924, relating maps to business, “The Part That Old Maps Play in Modern Business,” by P. L. Sperr. He describes the treasure hunter, the artist, the interior designer, the historian, the lawyer and the insurance agent—among other familiar cast members. It is amazing somehow, that 70 years later, those same folks appear at our door!


For the mystery lover, the June 9th, 1951 issue of the Saturday Evening Post contains Morton M. Hunt’s “The
The treasures of the Map Division are described in a series, "Treasure House Libraries," in the Map Collector.

This describes the wealth of pre-twentieth century materials in the Map Division, including strong holdings from various European cartographers.

Secret of the Vanquished Explorer." There you will see a two-page color spread, an illustration of the Map Division reading room, when it was located on the third floor, Room 312. If you look carefully, you might recognize Gerard Alexander, former Chief of the Map Division, and Frederick Pohl, the "hero" of the piece.

William K. Zinsser, a writer with whom many of us are familiar, pulled together one of the best popular books ever written about The Research Libraries, called Search & Research, The collections and uses of The New York Public Library, New York: The New York Public Library, 1961. Illustrated by Tom Funk's absolutely charming block prints, this book is a collectable among Library staff and alumni. On pages 28 and 29 the Map Division is cheerfully described, and page 24 includes a landscape of the wonderful marble hallway outside our door.

Karl Brown's article, probably composed by Walter Ristow [based on manuscript and typewritten copies in Map Division archives], is updated in style and spirit by Sam P. Williams' Guide to the Research Collections of The New York Public Library, Chicago: ALA., 1975, pp. 205-7.


To close this bibliographic journey, I proudly refer you to two articles published by Map Division staffers, Stephan K. Saks and Kristopher Cheppaiikode in the final issue of The New York Public Library's Research Libraries Notes, Winter/Spring 1996/7, Vol. 9, No. 1. Each wrote at length about the unique map library users, not so unique, they appeared above in that 1924 item also! Stephan’s “A Year With Maps,” describes his first year in the Map Division as the new Administrative Librarian. Kris, a geography major, who is studying GIS and cartography at Hunter College of The City University of New York, composed "Research a la Carte: University and College Use of the Map Division."

Happy reading. Better yet, come on in for a visit!

We are closed Sundays and Mondays, open 11-7:30 on Tuesdays; 11-6 on Wednesday, 10-6 Thursday through Saturday. Closed most holidays, open Election Day. 212-930-0587; 212-930-0027 fax; online map reference at mapref@nypl.org
BOOK REVIEW

Mapping an Empire: the Geographical Construction of British India, 1765-1843
ISBN: 0-226-18481-8, $85.00

Reviewed By:
Donald Clay Johnson, Curator
Ames Library of South Asia, University of Minnesota

For his dissertation, Edney extensively used various archives to glean data related to mapping concerns of what was to become British India in 1858. The present work pushes back from 1799 to 1765 the historical period he investigates. It should be noted immediately that empire was not the appropriate term to use for the time period under discussion, since the East India Company, a commercial company, formed the British presence in India until 1858, not the government of the United Kingdom.

Several errors (e.g., defining a lakh as 10,000 instead of 100,000 [p. xvii], placing the Punjab to the west of the Indus [p. 5], and Mangalore to the east of Madras [p. 182], raise questions about Edney’s discussion of India. His approach derives extensively from Foucault and lamentably applies twentieth century values to earlier times. Basically overlooked is the fact that in the 18th century the British were far from the dominant presence in India. Rather, they were but one of numerous contesting forces as the Moghul empire collapsed. Asian groups such as the Marathas and Afghans seized portions of India every bit as extensive as those held by the British and French. Dynamic leaders such as Haidar Ali and his son Tipu Sultan were defeated by the British only after long and perilous campaigns that could have been lost as easily as they were won. Thus to define British relations with Indians solely as power relationships overlooks realities of the eighteenth century.

A basic question relating to mapping in India is: why should this be undertaken? Edney takes the side to the scientific community that geography needed the most accurate maps possible. However, it is important to ask: what was the agenda of the East India Company relating to maps? The Company needed maps and geographic data for determining land use and taxation, for military purposes so that troops might be moved efficiently and quickly to the various locations, and for administrative needs. These practical considerations were not the same as scientific interest in determining the basic structure of India. Tensions between these two radically different perspectives on mapping make the period Edney studied a fascinating example of European expansion and its relations with indigenous peoples. Further complicating any map production was a further tension between what needed to be confidential and what could be made available to a larger audience. Obviously military maps could not be widely dispersed.

Edney omits discussion of existing Indian, Danish, Dutch, French, or Portuguese mapping in India. The British were but one of a number of European groups active in India and each needed maps of one type or another. The time period under review was an era of great scientific advances which affected map making. Unfortunately, Edney neither discusses the

status of western mapping in 1765 nor shows its growth and evolution to his terminal time of 1843. Rather, he concentrates upon two presidencies, Bengal and Madras, documenting the contestation of power and authority relating to the production of maps within the East India Company. Aspects of this narrative prove only too well that surveyors in the field could, if they so chose, exercise great freedom in their tasks or responsibilities, since communication with Calcutta or Madras took time. Further increasing this freedom was the minimum of one year necessary for a communication from India to go to London for approval by East India Company headquarters and to receive a response. Asking forgiveness instead of permission often allowed individuals the ability to undertake projects which have benefited scholars ever since. Similarly those without much motivation could do less than minimal work and not fear undue reprimand as pestilence, inhospitable local groups, or "unexpected problems" could easily be cited as covers for laziness. In short, mapping, like many other activities of the East India Company was very much affected by the attitudes and approaches of individual staff. Edney’s work in archives documents this as well as the communication among various administrative levels of the Company. This reviewer would have been happier if Edney thoughtfully summarized events and interactions and placed them within the context of evolving attitudes towards mapping rather than excessive discussion of individual events and happenings.