

## The Great Promoter: William J. Barrow and His Role in the History of Conservation

### SUMMARY

William James Barrow (1904-1967) promoted the need for conservation of books and paper throughout his entire career. In a parallel fashion he and others promoted himself as an independent lone researcher in the chemistry of paper. A study of his life and work reveals a more complex picture of interdependence between Barrow and the people and institutions that supported him and their mutual need to promote the myth of Barrow's importance at the expense of the actual chemical research done by others, upon which Barrow's contributions were based.

For the past forty years, Barrow has been credited with discovering the chemical dynamics of paper deterioration even though he was a poorly educated craftsperson in the field of document restoration with no training, no expertise, and, for most of his career until the 1950s, no proper research facilities or equipment. Among librarians and archivists Barrow is popularly believed to be the only person to research and discover the dynamics of rapid paper deterioration due to acid hydrolysis and the first to have invented a chemical method to neutralize the acidity of paper through deacidification with a basic metal carbonate, specifically calcium carbonate. His patented method of document restoration combined deacidification with lamination, melting cellulose acetate foil to form protective layers of tissue and cellulose around the document to strengthen it. Although the process and equipment of lamination are little used today, the chemical research on the process of deacidification that he had been credited with is still important.

Modern chemical research on rapid paper deterioration began in Germany in the late 1800s. Köhler and Hall in Sweden established the dynamics of paper deterioration by the 1920s. Deacidification using aqueous solutions of

basic metallic compounds after the paper had been formed was invented by Schierholtz and patented by the Ontario Research Foundation in 1936. This early work was replicated and extended by the National Bureau of Standards (NBS) in the 1930s to establish the paper standards for the National Printing Office. Barrow consulted in the late 1930s with researchers at the NBS; and he developed his method of document restoration, including deacidification, with their assistance.

Barrow, rather than being an original researcher or inventor, transferred knowledge of acid hydrolysis from chemistry to document restoration and actively advertised his method of restoration, promoting the concept of acid deterioration of paper among librarians and archivists. The transfer of technology from chemistry to restoration is his major contribution to the history of conservation, although he is best known for the work he did more than ten years later under grants from the Council on Library Resources (CLR) in the 1950s and 1960s.

Barrow established a research facility, the W. J. Barrow Research Laboratory, in the Virginia Historical Society supported by grants from CLR. There he and his staff carried out a series of tests including those on the natural aging characteristics of paper, a non-aqueous means of deacidification (since rejected due to its toxicity), a method to accelerate the aging of paper for quick assessment of its permanence, and a quick test for lignin and acidity in paper, packaged for use by non-chemists. Under grants from the American Library Association (ALA), his laboratory also tested the strength and flexibility of catalog cards, adhesives, and bookbinding structures. The Laboratory's tests and findings were published in a series of research reports distributed widely by ALA. Barrow was also a part of a team of paper manufacturers, partially supported by CLR and the paper industry, who developed a large-scale process to manufacture alkaline, permanent-durable paper from wood fiber.

These later accomplishments are, of course, important in the fields of library and archives conservation. This later

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work grew from the concept of prevention of deterioration through deacidification of acid paper: a concept Barrow had realized by 1941 when he added deacidification to his document restoration method. He thus changed the way librarians, archivists, and others viewed paper by using, advertising, and promoting deacidification.

The myth of Barrow's importance as an original chemical researcher began to appear outside Barrow's own business advertisements in the 1950s and 1960s. It gained momentum with the availability of funds from external granting agencies used to promote both research and practice in library and archives conservation. His myth grew quickly to international proportions when he received grants from agencies and associations such as CLR and ALA to set up and support his own research laboratory staffed with chemists and research assistants. The uniqueness and importance of his research were stressed as both a basis for and result of the grants he received in the 1950s and 1960s. Barrow died in 1967 at the height of his fame, thus guaranteeing the continuation of his myth. It has remained a part of the folklore of library and archives conservation ever since, and as such it continues to obscure the factual history of paper deterioration in chemical research.

The Barrow myth is part of the politics of conservation in institutions, granting agencies, governmental bodies, and businesses and industries that serve the conservation community. These politics are as important to the history of the field as are knowledge of art, science, technology, and engineering. Future studies are needed to reveal why the field of conservation needed this myth during its development; why the myth continues to exist; and what role this myth plays in fund raising and public relations, not only for businesses, but also for libraries, archives, and funding agencies.

#### BIOGRAPHICAL FACTS

William James Barrow (1904–1967)

Document restorer, founder and first director of the W. J. Barrow Research Laboratory for the study of paper permanence, 1961–1977

Born: 11 December 1904 in Brunswick County, Virginia

1904–1925: Brunswick County, Virginia, near Dundas, Virginia

1923: Graduated, Randolph-Macon Academy

1923–1925: Attended, Randolph-Macon College

1923: Albert Barrow, cousin and President of the Barrow Corporation, became his business mentor

1925–1931: Employee and manager, Barrow Corporation's work clothes factories in Lynchburg, Virginia; St. Louis, Missouri; Tacoma, Washington; and Oakland, California

1931–1932: Unemployed, student in bookbinding and restoration, Marion Lane Studio, Washington, D. C. (over the winter), and observed restoration at Library of Congress and Folger Shakespeare Library

1931–1935: Henry Read McIlwaine, Librarian, Virginia State Library, encouraged Barrow's plan to learn restoration and arranged shop space and rental discount arrangement for the Barrow Restoration Shop in the Virginia State Library

1931–1959: Martha Woodroof Hiden, socialite, active member of many hereditary societies that sponsored restoration projects of Virginia's county records done at Barrow's Restoration Shop

1932: Opened Barrow Restoration Shop in the Virginia State Library in Richmond, Virginia

1935: Moved the Restoration Shop to Mariners Museum in Newport News, Virginia

1935–1940: Lived in Newport News, Virginia

1935–1941: B. W. Scribner, Head, Paper Section, National Bureau of Standards (NBS), provided chemical information, introductions to other chemical experts, and step-by-step oversight of Barrow's adaptation of cellulose acetate lamination and alkalization to lamination product

1935–1941: Learned about paper, paper permanence, and experimental techniques for studying paper permanence from NBS and Government Printing Office (GPO) paper chemists

1937: Prototype of roller laminator produced from surplus ship parts at Mariners Museum

[1938]: Addition of Japanese paper to lamination sandwich to add flexibility and strength to lamination product

1940: Moved the Restoration Shop to the new Virginia State Library building in Richmond Virginia

1940: Learned of deacidification of acid paper after formation from NBS, based upon Schierholtz's 1936 patent

1940: Addition of aqueous deacidification of documents prior to lamination under the guidance and assistance of NBS chemists

1940–1967: Lived in Richmond, Virginia (30 Albemarle Avenue)

1940–1967: Promoted and advertised his restoration method, including alkalization, nationally and internationally for the rest of his life

1940–1967: Vendor of the Barrow Lamination Process (laminator, training, and oversight of the deacidification process, and assistance with acquisitions of lamination supplies) to about eighteen libraries and archives around the world, including the U. S. Library of Congress, many state archives in the U. S. South, and in Europe, Cuba, and India

1942: Patent granted for Barrow method of restoration (U.S. patent #2301996)

1940–1967: Consultant to numerous libraries and archives

- nationally and, after World War II, internationally, especially in England and Florence, Italy
- 1940s–1950s: Began life-long friendship with Verner W. Clapp, Deputy Librarian of Congress, who also acted as Barrow's mentor and guide in the promotion of national interest in preservation of paper in libraries and archives
- 1950s: Randolph Church, Librarian, Virginia State Library, mentored Barrow and wrote and edited articles for the dissemination of the results of Barrow's studies of paper permanence
- 1957: Verner Clapp, now President, Council of Library Resources (CLR), helped to promote Barrow's image as an internationally recognized expert in paper chemistry by editing Barrow's reports and by funding Barrow's research into paper longevity predictions with one of CLR's first grants
- 1957: Barrow adds the increased workload of the CLR grants to his already busy schedule of full-time work in his paper restoration shop
- 1959: Barrow continues research into paper with his second CLR grant and reports that most modern paper in libraries will be too brittle to use by the year 2000
- 1959: A National Bureau of Standards study, *Preservation of documents by lamination* by William K. Wilson and B. W. Forshee, showed that some laminated documents showed rapid deterioration. Barrow saw this study as a professional and personal attack; he enlisted Clapp in an attempt to discredit the study. Barrow spent much time proving to his customers' satisfaction that his lamination method was still a viable restoration technique. His shop never really recovered financially from the questions raised in the NBS's study and it also caused a rift between Barrow and Randal Church, Director of the Virginia State Library, over who should bear the cost of restoration of earlier laminated documents. The resultant, although slow, decline of lamination as a standard treatment lowered Barrow's business income and made him more dependent upon grants and consultant work for his livelihood.
- 1960: CLR funds a joint project to develop the production of permanent, durable printing grade paper using alkaline sizing on a commercial scale in cooperation with Barrow, the Herty [Paper Research] Foundation, and the Standard Paper Company of Richmond
- 1961: Clapp wanted a paper research facility independent of the influence of paper companies. In rented space in the Virginia Historical Society in Richmond, CLR funds established a state-of-the-art paper research laboratory, the Barrow (W. J.) Laboratory specializing in research projects on paper longevity and related topics of interest to libraries and archives.
- 1961–1967: Clapp and the CLR funded the American Library Association's Office of Library Technology headed by Frazer Poole, to carry out projects on library subjects through the Barrow Research Laboratory. These projects each had large advisory boards of chemists, librarians, archivists, and bookbinding experts. The first project established specifications for permanent and durable catalog card stock and card dimensions.
- 1961–1967: The Barrow Research Laboratory with the help of many chemical consultants worked out specifications for accelerated aging of paper and attempted to correlate results of accelerated and natural aging of paper
- June 1961: Barrow was hospitalized for heart disease for two weeks and advised by his doctors to slow down. Despite a strong family history of heart disease, he quickly resumed his heavy work schedule and continued to smoke and drink alcohol.
- Mid 1960s: CLR continued to fund grants to the Barrow Research Laboratory through American Library Association, Office of Library Technology, to develop specifications for library binding. This project extended longer than planned because there was no test equipment for bindings. Barrow hired an engineer to design bookbinding testing machines for use in this project.
- Mid 1960s: Clapp insisted that the Barrow Lab work on the development of an easier, cheaper, and quicker method of deacidification. CLR funded Barrow to develop a non-aqueous method. Barrow explored the use of morpholene (related to ammonia) in a liquid spray form to deacidify paper in books without disbinding the books. The method was eventually abandoned due to the inefficacy and toxicity of the morpholene compound.
- Mid 1960s: Clapp worked to promote Barrow's work to build awareness of the impermanence of paper within the library, archives, and publishing fields by CLR sponsored seminars with selected leaders. Virginius Dabney, editor of the *Richmond Times Dispatch*, helped publicize the need for permanent durable paper in publications of lasting value by working with academic publishers, who were among the first to adopt permanent-durable paper in book production.
- Mid 1960s: Barrow began consulting with the British Library for the production of permanent paper and lasting bindings for their printed book catalog and worked with others on procedures to wash, size, and deacidify paper in a one-step bath for use with the ancient papers that were heavily damaged during the Florence flood. Barrow planned another consulting trip to England at the beginning of September 1967.
- 25 August 1967: Suffered heart attack in evening at home, pronounced dead later that night at St. Mary's Hospital, Richmond, Virginia. He was buried at River View

Cemetery in Albert Barrow's family plot, Blackstone,  
Brunswick County, Virginia

Family: Episcopalian; [Conservative Southern] Democrat;  
economically comfortable, socially high (landed gentry)

Father: Bernard Barrow, physician, born 15 December  
1874 near Paole, Virginia, on the Barrow family planta-  
tion and died 13 June 1954 near Dundas in Brunswick  
County, Virginia

Mother: Sallie Virginia Archer, housewife and mother, born  
5 October 1877 in Petersburg, Virginia, and died in 1968

Sibling: Sarah Barrow Davey, teacher and school adminis-  
trator in Washington, D. C., born 1901 in Brunswick  
County, Virginia

Wife: Married 6 April 1935 in Richmond, Virginia, Ruth  
Abbott Gibbs, born 24 December 1912 in Bedford  
County, Virginia (daughter of Morris Winston Gibbs,  
Physician, and Willie Neolia Abbott), and died 1 July  
1988, Virginia Beach, Virginia

Sons: Bernard Gibbs Barrow, 1937–1995, and twins  
William Archer Barrow, 1943–, and James Abbott  
Barrow, 1943–

#### Honors and awards:

1935 Life member of the Virginia Historical Society

1936 Fellow of the Royal Society of Arts

1961 Honorary member of the Randolph-Macon College  
chapter of the Phi Beta Kappa Society

1966 Honorary doctoral degree from Randolph-Macon  
College

1966 Fellow of the American Institute of Chemists

1966 Award of merit from the American Association for  
State and Local History

#### Principal memberships:

American Association for the Advancement of Science;  
American Institute of Chemists; Association for the  
Preservation of Virginia Antiquities; Bibliographical  
Society of the University of Virginia; Consulting Chemists  
and Chemical Engineers; First Families of Virginia;  
International Centre for the Study of the Preservation and  
the Restoration of Cultural Property, Paper Committee  
(Rome, Italy); International Council on Archives; Kappa  
Alpha Order (Southern Social Fraternity); Royal Society  
of Arts; Society of American Archivists; Sons of the  
Colonial Wars; Sons of the Revolution; Technical  
Association of the Pulp and Paper Industry; and the  
Virginia Historical Society

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