Rebekah Scott Hall

Building Chronology
Exterior Conditions Assessment
Maintenance Recommendations




Agnes Scott College
Decatur, Georgia
September 2014

APPS
Atlanta Preservation & Planning Services, LLC

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EXECUTIVE SUMMARY OF CURRENT EXTERIOR CONDITIONS

For a structure that is almost 110 years old, Rebekah is remarkably intact. Its exterior is, for the most part, structurally sound and, with appropriate repairs and maintenance, the building could function for another century. However, the repairs must be *appropriate* to the historic fabric, and maintenance should be an *ongoing process* guided by a maintenance plan. Continual postponement of repairs constitutes demolition by neglect.

- The entire **roof** needs immediate attention. Both cupolas have rotted wood and extremely deteriorated paint. The current composition asphalt-fiberglass roofing needs to be replaced as it has long out-lasted its useful life of 40 years. The seven chimneys need to have their coping and flashing replaced, and all should be capped in an unobtrusive manner.

- Rebekah's load-bearing **brick walls** are in good condition, with some notable exceptions. Especially on the south wall of the Annex and the north foundation of the porch, repairs with non-matching brick and modern mortar have contributed to the poor appearance of the building as well as the ongoing deterioration of the surrounding bricks. Some of the recent inappropriate repairs are themselves failing.

    - It is imperative that all repairs be made with mortar that matches the historic mortar in composition, texture, and color, and that the mortar joints be of the same size and profile as the originals. Samples of bedding and pointing mortars were submitted for laboratory analysis (see Appendices D and E). The analysis provides enough information so the College can have replacement mortars formulated to match the historic mortar.

    - Because of the number of seriously deteriorated bricks which must be replaced, it is strongly recommended that a supply of custom bricks be manufactured to replicate the historic bricks. They can then be used to make seamless repairs.

    - It is firmly recommended that the College hire knowledgeable and experienced craftspersons to undertake all the masonry repairs. Modern masonry materials and techniques are destructive to historic brick; Rebekah cannot remain a viable structure if current methods and practices are allowed to continue.

- A major problem with Rebekah's exterior is the lack of ongoing maintenance of the many **architectural wood features** which contribute to its style and appearance. Much of the decay of the wood elements is due to neglect and improper paint preparation and application. Some elements are so deteriorated that significant repairs or complete replacements are now necessary. Virtually all the exterior wood needs to be scraped or stripped, primed, and painted.

- On May 19, 2014, a continuous outflow of **water** was discovered in the northwest corner of the crawlspace of the main building, accumulating to a depth of 3"-5". The problem was reported to Facilities Management that same day. On July 30, the water was continuing to flow, and the wet conditions under the building and in the crawlspace of the front porch had worsened.

- Structural wood elements (flooring, floor joists, piers) were rotting, and mechanical system elements located under the building (ductwork, plumbing) were covered with mold or rust.

- If allowed to continue, the water outflow will also cause erosion, settlement of the building, and masonry deterioration, and may already have done so. It is imperative for the structural integrity of the building and its below-floor systems that the source of this running water be located and stopped. It will then be necessary to install fans to dry out the crawlspaces.

➢ Finally, a functioning **gutter system** is absolutely necessary to ensure Rebekah's longevity. Drainage problems are affecting the brick walls and woodwork. Complete gutter systems need to be installed on both the porch and the Annex. Existing gutters and downspouts need to be replaced in kind. Ideally, all downspouts would empty into below-grade piping that would tie into a campus-wide water reclamation system. If that is not possible, then splashblocks or flexible downspout extenders need to be installed to direct water away from the foundation.

Rebekah is an important building historically to Agnes Scott College. It represents the work of a master architect and is a textbook example of the Italian Renaissance Revival style. It continues to be a popular dormitory for upper classmen. All repairs, replacements, treatments, and maintenance of the building and its materials should be done in accordance with the U.S. Secretary of the Interior's Standards for Rehabilitation, listed in Appendix F. Detailed technical information on the care of historic brick, mortar, woodwork, stucco, and porches can be found in Appendices G-K.

Proper maintenance of Rebekah's historic exterior, along with the upcoming renovations of her interior will ensure an impressive introduction of prospective students and their parents to the rich traditions of Agnes Scott College. It will also serve as an example of the sustainable reuse of an extant structure and the proper stewardship of our shared educational heritage.

INTRODUCTION

Rebekah Scott Hall (also known as Rebekah) is an Italian Renaissance Revival style building constructed in 1905-06 on the Agnes Scott Institute campus at the southeast corner of East College Avenue and South McDonough Street. Designed by the architectural firm of Morgan and Dillon, it originally housed the school's dining room, kitchen, chapel, meeting rooms, and dormitory rooms for about 100 students. The ground floor now has a central lobby, the Katherine Woltz Reception Room, and the College Admissions, Development, and Marketing & Public Relations offices, while the two upper stories remain housing for upperclassmen. Rebekah is constructed of load-bearing brick and features a white-columned porch, decorative woodwork, seven chimneys, and two distinctive cupolas. As a historic building, it is a contributing structure to the South Candler Street-Agnes Scott College Historic District, which was listed on the National Register of Historic Places on July 29, 1994.[1]

This report is part of the investigation and assessment of Rebekah Scott Hall, led by Jenkins•Peer Architects, conducted prior to the building's planned restoration. Atlanta Preservation & Planning Services, LLC (APPS) was one of seven firms on the project team.

The building was investigated between May and August 2014, primarily by Laura Drummond of APPS. Independent historic paint specialist Jean Spencer was the lead in the collection of paint samples. Her report is in Appendix B. All photographs in this report were taken by Laura Drummond and Jean Spencer in 2014, with the exception of historical photographs, whose sources are individually noted.

The investigation involved ten site visits during which the property was photographed, measured, and researched. Anna Lachkaya, Senior Administrative Assistant to the Vice President of Enrollment, was the primary contact, and this project could not have proceeded without her support and assistance. Exploration focused primarily on Rebekah's exterior to determine building materials, construction methods, changes made to the building over time, and the historic features and finishes. Examination was, for the most part, non-invasive, except where paint and mortar samples were collected. Efforts were made to gather samples in obscure areas, and the more prominent paint sample areas (such as the front door) were infilled. It should be noted that more invasive examinations might reveal additional maintenance or repair issues that need to be addressed.

Mortar samples were collected and documented by Laura Drummond. Her report is in Appendix D. The samples were sent to experienced architectural conservator David Arbogast of Arbogast Mortar Analysis in Davenport, IA. His analysis, along with the sands and fines samples he provided, will enable the College to have custom mortar manufactured for repairs to Rebekah's historic brick. Paint samples were sent to renowned historic finishes expert Frank S. Welsh of Welsh Color & Conservation, Inc. in Bryn Mawr, PA. His analysis and the color samples he provided will enable the College to restore original colors to Rebekah's exterior woodwork. The complete laboratory reports and samples from both analyses are in Appendices C and E.

An entire day was spent in McCain Library, working with the Special Collections and Archives. The assistance of Marianne Bradley, Library Administrative Coordinator and College Archivist, was invaluable. Ms. Bradley made available maps, photographs, and other documents which

[1] NRIS #94000787.

were very helpful in deciphering the building materials and history of Rebekah. Research was also conducted in the Kenan Research Library of the Atlanta History Center, which had records on architects Morgan and Dillon, Rebekah's designers, as well as historic newspaper accounts of significant College events.

Research was immensely aided by the archival resources which the College has made available to the general public online.[2] These resources, which included histories, president's and treasurer's reports, catalogs, yearbooks, and alumnae magazines, were absolutely critical to establishing the building chronology. Additional materials, including architectural drawings from 1949-1995, were made available by Facilities Management.

Further appendices to this report include information that will be helpful to the College in the repair and maintenance of historic Rebekah Scott Hall. These include the Secretary of the Interior's Standards for Rehabilitation of Historic Buildings, and five technical briefs on replacing historic mortar, cleaning historic masonry buildings, exterior paint problems on historic woodwork, the care of historic stucco, and preserving historic wood porches.

[2] McCain Library Special Collections and Archives, http://libguides.agnesscott.edu/content.php?pid=38755&sid=1806102.

DESCRIPTION AND HISTORY

Rebekah Scott Hall is an Italian Renaissance Revival style, cupolated[3] building consisting of three distinct sections: a three-story east-west oriented main building; a three-story south ell; and a one-story south kitchen, popularly but misleadingly known today as the Annex.[4] A one-story verandah-style porch[5] runs the length of the main building on the front side, wraps around the east wall, and extends along the south wall to the ell. A one-story colonnade continues the porch east to Agnes Scott Hall (Main Hall). Rebekah was the second permanent building constructed by the Agnes Scott Institute (ASI).[6]

Rebekah Scott Hall in 1906, the year it opened. From ASC Archives Flat Files.

The Decatur Female Seminary was a private school opened in 1889 in Decatur, Georgia, under the auspices of Decatur Presbyterian Church. The school first operated out of a leased house owned by the Allen family[7] (see photo on next page), on College Avenue just south of the Georgia Railroad. In the spring of 1890, Colonel George Washington Scott, a member of the church, donated $40,000 to the Seminary on the condition that it was re-named in honor of his mother, Agnes Scott. On November 12, 1891, the first permanent building of the Agnes Scott Institute (ASI) was dedicated. The four-story all-purpose academic building was designed by the prominent Atlanta architectural firm Bruce and Morgan.

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[3] Having one or more cupolas.

[4] Contrary to the widespread misconception, the "Annex" is original construction, not a later addition. See a complete discussion in the Annex section later in this report.

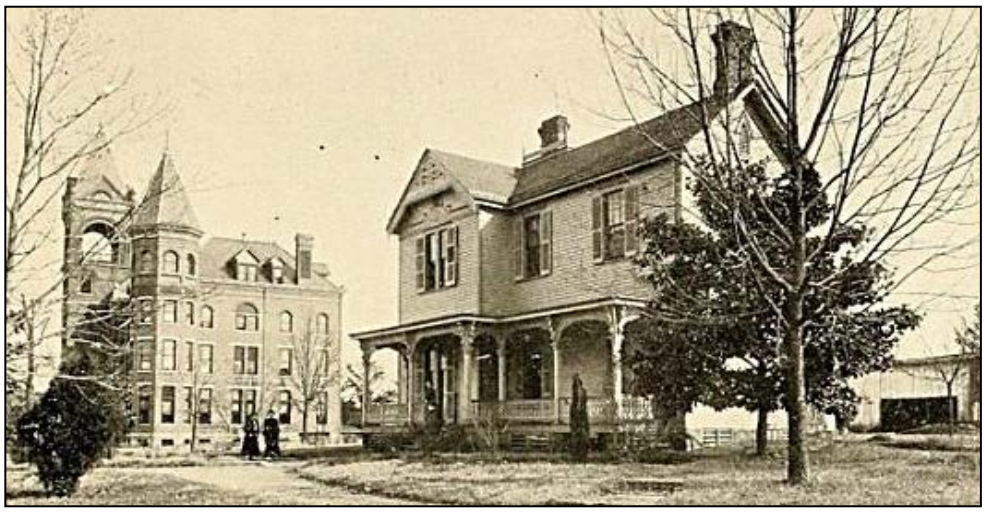
[5] A verandah is a large, open porch with a roof, is partially enclosed by a railing, and extends across the front and sides of a building.

[6] See Appendix A for a timetable of Agnes Scott College.

[7] Mrs. Allen's house was part of the original 5.5 acres purchased by Colonel Scott for the Institute. It was moved in 1890 closer to College Avenue, and was re-named the White House. The building was demolished in 1952 to make way for Hopkins Hall, which today houses the Wellness Center on its first floor.

Two parcels of land lay between the ASI campus and South McDonough Street to the west. In 1901, the three-acre parcel immediately west of Main Hall owned by the Pattillo family was purchased by the Institute for $10,000.[8] Along with the land was an eight-room, Folk Victorian style house, which was named West Lawn Cottage (see photo below). The school made improvements to the property and refurbished the house, converting it into a very popular dormitory for twelve boarding students.

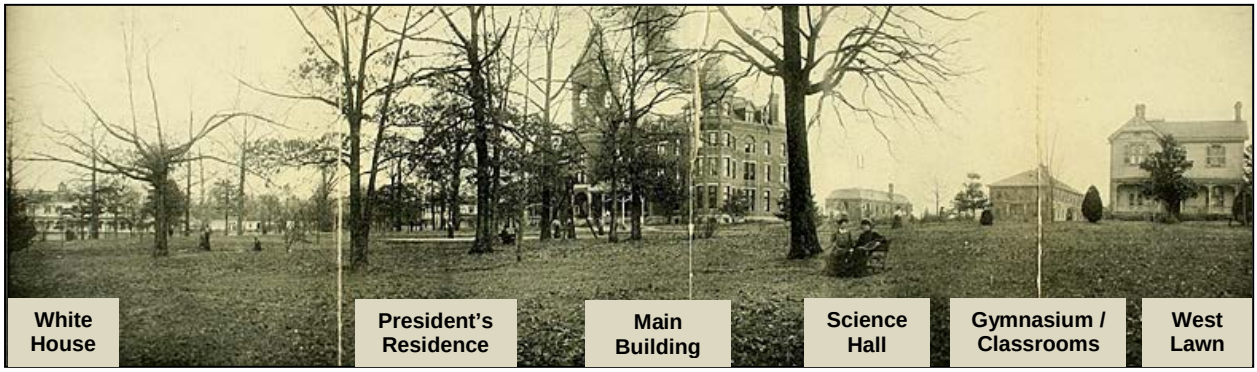
The White House, originally owned by the Allen family, was the school's first building. It served as a dormitory and contained a dining room that was closed in 1943 when Rebekah's dining room became the school cafeteria. The building was razed in 1952. From McCain, Story, p. 4.



Agnes Scott (Main) Hall and West Lawn Cottage. From 1902 Silhouette, p. 13.

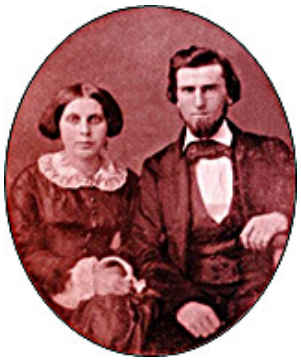
The school expanded in 1903-04 with two new buildings (see photo on next page). The combination classroom-gymnasium building and the science building were located south of today's Rebekah and Main Halls in the general area of Buttrick Hall. In 1904, the M. A. Candler house on South Candler Street was purchased by the school's alumnae to serve as the infirmary, and was appropriately named Alumnae Infirmary.

[8] The 1902 *Silhouette* reported that the money was donated by Samuel M. Inman and Josephine (Mrs. B. F.) Abbott, and the Trustees purchased the property. Later versions of the story (Gaines; McNair, *Story*) state that Colonel Scott bought the property and had the deed listed in the school's name.



Agnes Scott Institute in 1904 (infirmary not visible). From 15th Annual Catalogue, p. 110.

It soon became clear, however, that a real dormitory was necessary to accommodate the growing student body. An administration building was also needed to house a chapel, the society halls, and faculty and study rooms. On February 9, 1905, the Board of Trustees authorized the financing and construction of a multi-purpose building. Fundraising began immediately, with the lead taken by the Scott family, who donated $30,000 from the Rebekah Scott Memorial Fund.[9] An additional $30,000 came from nine other subscribers, led by Samuel Inman, who gave $15,000. By June, Donaldson and Pierson were under contract to construct the building, which was designed by T. H. Morgan of the architectural firm Morgan and Dillon. Construction began in the summer of 1905, and the building was dedicated during the Commencement exercises on May 30, 1906. Students moved into the dormitory rooms in September 1906.



Wedding picture of Rebekah Poole Bucher and George Washington Scott, 1854, Chambersburg, PA. From Noble, p 7.

Architects

Thomas Henry Morgan (1857-1940) was one of Atlanta's most prolific architects. He was called by his peers the "dean" of Atlanta architecture. A member of the American Institute of Architects from 1889-1940, he founded and was the first president of the AIA Atlanta chapter. He was also founding editor of the *Southern Architect and Builder* magazine. In May 1879, he joined the Atlanta architectural firm, Parkins and Bruce, as their sole draftsman. In 1882, he partnered with Alexander C. Bruce (1835-1927) to form the new firm Bruce and Morgan. One of their many collegiate projects was the design of ASI's Main Hall in 1891. In 1903, the firm hired John Robert Dillon as an associate. The following year, Bruce retired, and the firm became Morgan and Dillon. Rebekah was one of Morgan and Dillon's first contracts.

[9] According to her tombstone, Rebekah Bucher Scott was born May 20, 1834, and died July 12, 1899. The tombstone in the Decatur Cemetery is shared with her husband, George Washington Scott (February 22, 1820-October 3, 1903). Many Agnes Scott histories, catalogues, and other documents state that Rebekah Scott Hall was built using funds from the **memorial** fund established in her memory by her husband. However, the memoir of George Washington Scott by his great-granddaughter states that Rebekah "survived her husband by many years," an erroneous claim. From Betty Pope Scott Noble, *George Washington Scott, 1829-1903, A Family Memoir* (Decatur, GA: The Noble Family and Agnes Scott College, 2002), 9.

Architectural Style

Rebekah Scott Hall was a departure from the Victorian Gothic[10] of Agnes Scott's Main Hall, a style that had been very popular during the second half of the nineteenth century. Victorian Gothic was characterized by its flourishes, broken lines, picturesque[11] rooflines, towers, pointed arches, and its general asymmetry. The new hall designed by Morgan was Italian Renaissance Revival (IRR), a non-picturesque, symmetrical style that was stately rather than exciting, "correct" rather than daring.[12]

Prominent features of IRR structures were their masonry facades, rounded arches, low-pitched hipped roofs, and corner quoins. There was often a full-length balustraded verandah and a balcony. The widely overhanging boxed eaves with molded cornices were supported by decorative brackets. For residences, tile was the normal roofing material, but slate was common on commercial and institutional buildings.

Normally two- to four-stories tall, an IRR building had elaborate string or belt courses organizing the structure into distinct horizontal divisions. The courses defined the window sills and strongly delineated the floor divisions, each of which was accentuated differently. The windows were typically rectangular and piano nobilé, a feature where the upper story windows were smaller and less elaborate than the first story windows, which were full-length with embellished hoods or transoms and prominent sills.

The style has been divided into sub-types. Rebekah exemplifies the "hipped roof with projecting wing" sub-type. The 40' central bay, featuring the double front doors, fanlight, and leaded glass sidelights, projects slightly (about 50") from the front façade. Its prominence is emphasized by a number of other elements, including the front staircase, double columns, a second story balcony, the inscribed name and date over the balcony door, two rows of eave brackets (single rows elsewhere), and the imposing central domed cupola.

The Italian Renaissance Revival style was an academic resurgence of the originals of the Italian Renaissance, and was more authentic than the pre-Civil War Italianate style. IRR was popular from 1890-1935 in the U.S. for architect-designed landmark commercial or civic buildings located in urban areas. In reaction to the more flamboyant styles popular in the 1800s, IRR imparted to an individual building a clear sense of order and unity based on the classical qualities of balance, symmetry, and restraint.[13] Rebekah is a textbook example of the style (see photo on next page).

The juxtaposition of Agnes Scott (Main) Hall and Rebekah Scott Hall is a superb example of the transition from nineteenth to twentieth century architectural styles, a transition seldom seen in two side-by-side buildings. Main Hall's taller Victorian Gothic visage presents multiple towers, heavy Romanesque arches, a variety of exterior finishes and embellishments, and an irregular roofline. Rebekah appears almost stripped down in comparison, but is true to historical

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[10] A number of sources have stated that Rebekah's architectural style is "Victorian Collegiate," or some variation of that term. Rebekah, however, is quite definitely Italian Renaissance Revival, while Main Hall can accurately be styled Victorian Collegiate.

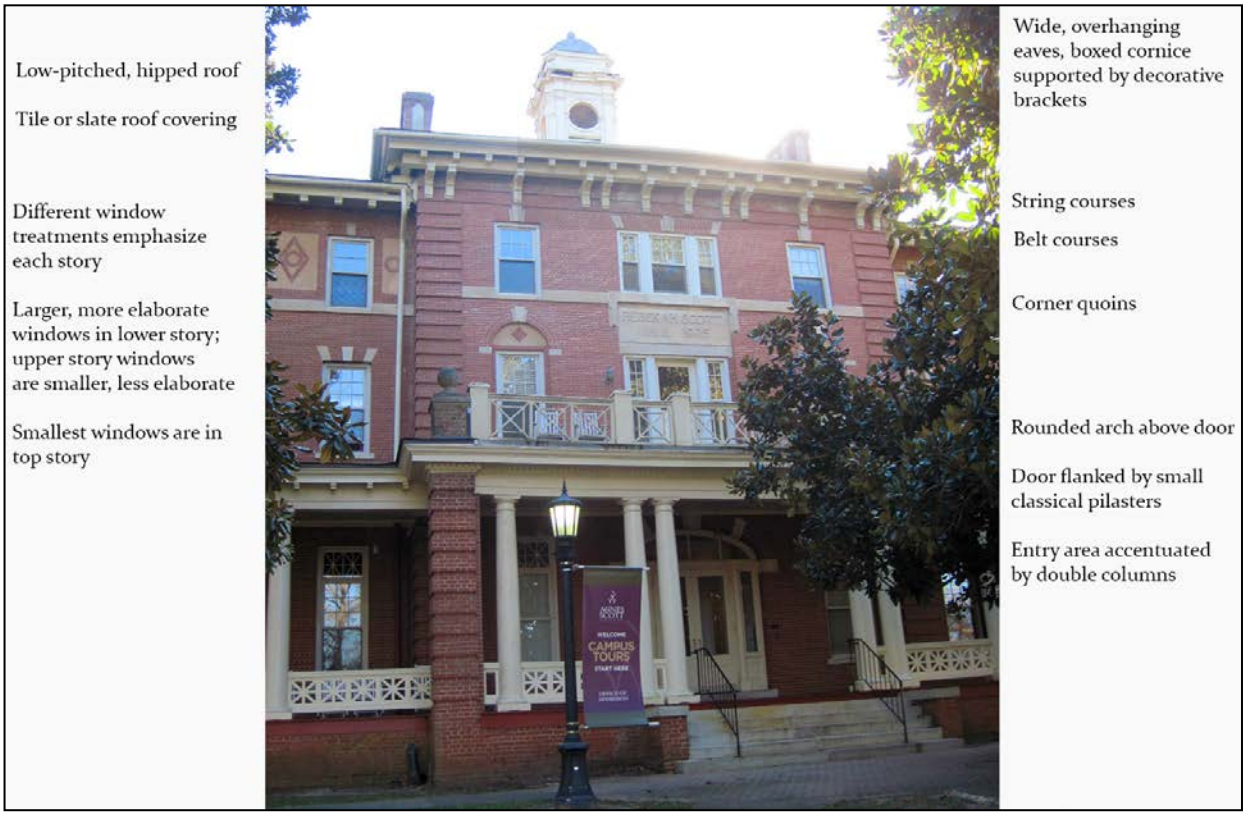
[11] "Picturesque" as an architectural term denotes the qualities of variety, irregularity, asymmetry, and interesting textures.

[12] Rachel Carley, *The Visual Dictionary of American Domestic Architecture* (New York: Henry Holt & Company, 1994), 179.

[13] Leland M. Roth, *A Concise History of American Architecture* (New York: Harper & Row, Publishers, 1979), 191; Virginia Savage McAlester, *A Field Guide to American Houses, the Definitive Guide to Identifying and Understanding America's Domestic Architecture,* Rev. ed. (New York: Alfred A. Knopf, 2013), 497-99.

Renaissance forms, and presents a façade of unity and symmetry. The differences reflect the changes from the Victorian love of ornamentation to the cleaner, less decorated facades preferred in the new century. The difference in styles may also reflect the personnel changes in the architectural firm. The buildings designed by Bruce and Morgan are firmly nineteenth century, while the more modern Rebekah (1905-06) was one of the first creations of the new firm, Morgan and Dillon, constructed just after the retirement of Alexander Bruce.

Italian Renaissance Revival Characteristics of Rebekah Scott Hall

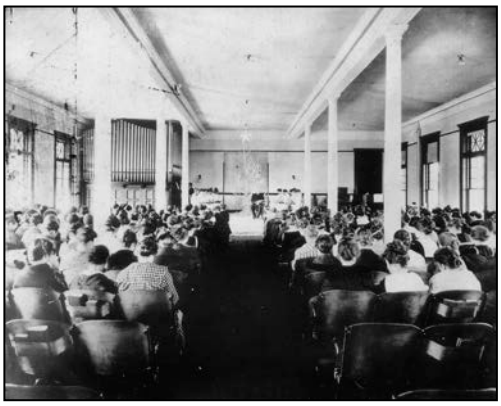


Inman Hall, built six years after Rebekah, is another Morgan and Dillon building, and is very similar to Rebekah in materials and finishes. However, its side gable roof with pyramidal dormers, front-gabled entryway, and lack of eave brackets evoke the Colonial Revival architectural style (see photo at right).

Inman Hall, built in 1911, designed by Morgan and Dillon.

BUILDING CHRONOLOGY

When Rebekah was constructed, it was said to possess "every modern comfort and convenience".[14] The building was heated with steam, lighted by electricity, and supplied with hot and cold water and sanitary plumbing. A wide verandah ran the entire length of the building in front, across one end and back to the wing. It was connected with the main building by a colonnade. The cost of the building when finished was approximately $60,000.[15]



The chapel in Rebekah. Photo is not dated, but hairstyles suggest early 1900s. From ASC Archives Flat Files.

The building housed the chapel in the east wing (see photo at right), while the west wing was divided into two equally-sized rooms for the College literary societies.[16] In the center of the building was a commodious lobby with parlors on the west side. The dining room, with seating for 250, was just off the lobby in the south ell. Beyond the dining room was the kitchen, located in the one-story section of the south ell.[17] Dormitory rooms on the upper two floors contained 40 double rooms and 18 single rooms, accommodating almost 100 boarding students.

Rebekah opened in September 1906, the same year that the Institute became Agnes Scott College, a four-year college that could grant degrees. Five years later, three new brick and limestone buildings were completed on the campus. Jennie D. Inman Hall was a three-story residence. Lowry Hall was a four-story science building with lecture rooms and laboratories. The Carnegie Library, a gift from Andrew Carnegie, was a two-story building with room for 20,000 volumes. The expanded campus was first depicted on the 1911 Sanborn Fire Insurance map (see next page).[18]

By 1911, Agnes Scott College was using municipal water from Decatur.[19] Immediately behind Rebekah was a 75' tall, 25,000 gallon capacity reserve steel trestle water tank. The College had electric lights from its own independent electric plant, and a coal-fueled steam heating system. Rebekah was equipped with six fire extinguishers. Rebekah and Main had iron fire escapes (pictured on the Sanborn map). Security came from an American Watchman Time Detector[20] with three stations, and a watchman made hourly rounds. College Avenue at the time was 45 feet wide, and the underpass beneath the railroad tracks was in place. It is still used by College students and staff to travel from the campus to downtown Decatur.

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[14] *Sixteenth Annual Catalogue and Announcement of Agnes Scott Institute*, Vol. 1904-1905, 18.

[15] Ibid.

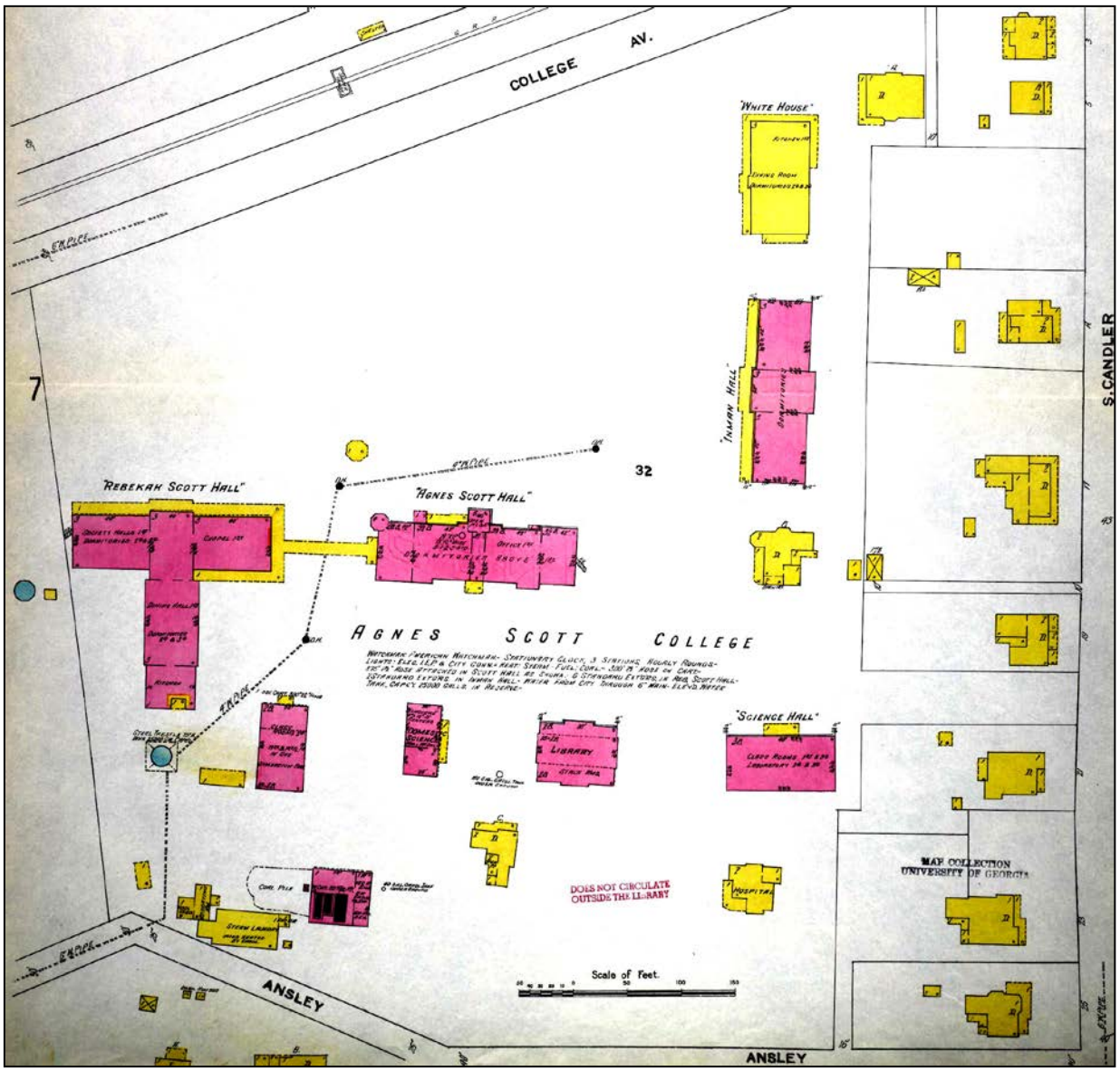
[16] The Mnemosynean Society, formed in 1891, and the Propylæan Literary Society, formed in 1897, previously had rooms on the fourth floor of Main until they moved into Rebekah. In 1922, the two societies merged to form Pi Alpha Chi, a debating society.

[17] The kitchen (now called the Annex) has the only basement in Rebekah.

[18] The 1911 Sanborn Fire Insurance map yields important information on the College and its environs. It also provides structural details about the campus buildings, including Rebekah, which are unavailable from any other source. There were no extant floor plans or measured drawings of Rebekah Scott Hall prior to 1949 found during this investigation.

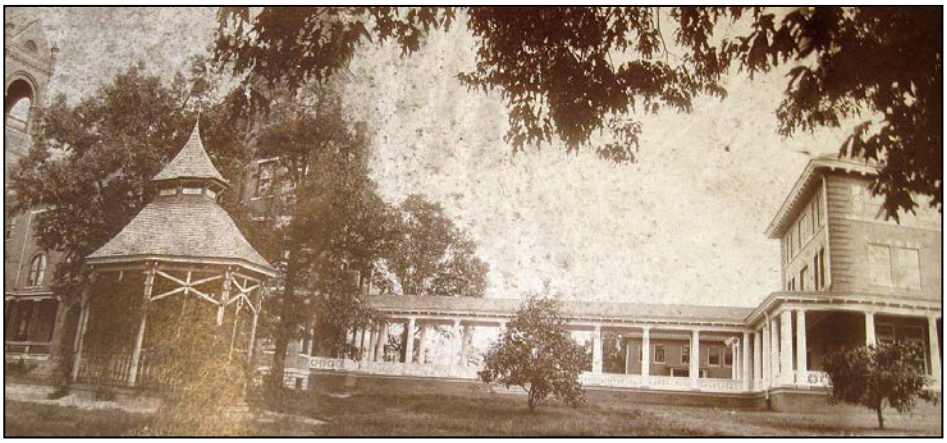
[19] The Institute's water originally came from a well at the northwest corner of Main Hall, and was covered by the Summer House. In 1909, there was a typhoid outbreak on campus (many sick, but no fatalities), which was caused by the contaminated well water. The well was filled in, and the school switched to city water.

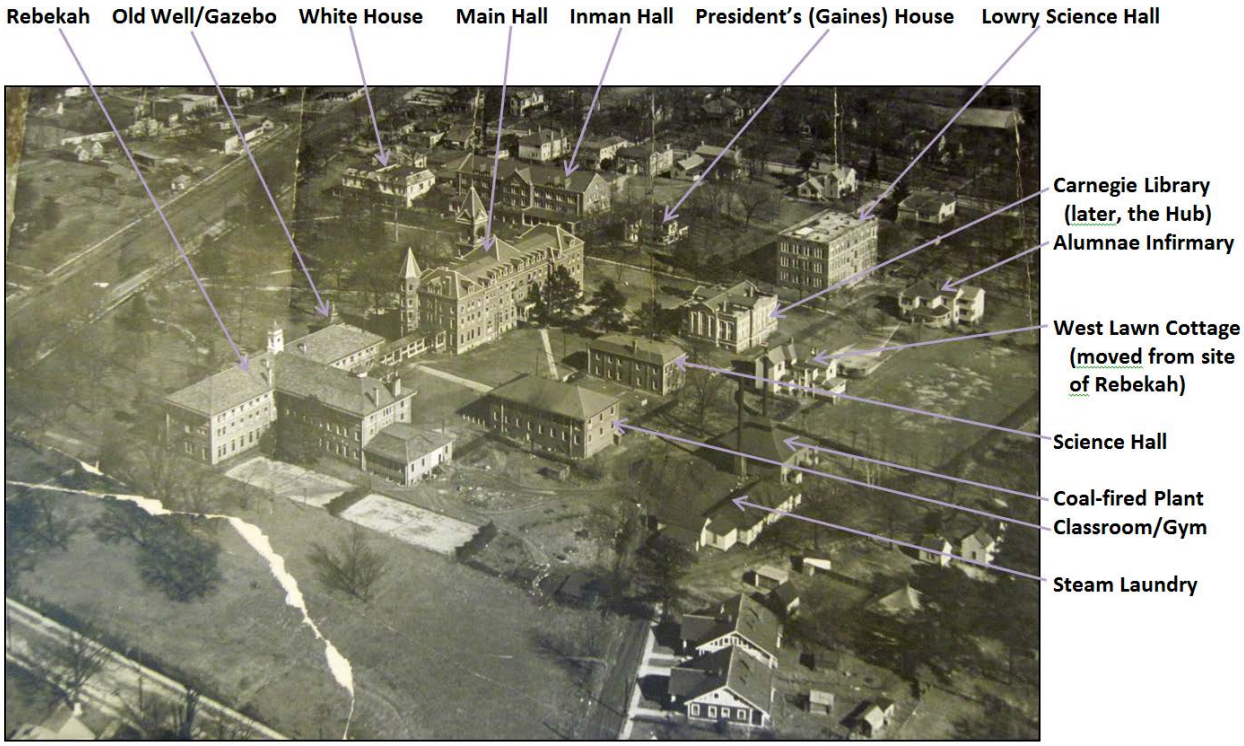
[20] A time detector system for night watchmen, which required them to register the time visits were made to various parts of campus.



Agnes Scott College campus in 1911. Even the Summer House/Gazebo is depicted, just northwest of "Agnes Scott Hall." From Sanborn Fire Insurance Map, 1911, Sheet 8.

Undated, but early view of the Summer House/Gazebo with (left to right) Main, the Colonnade, the first gymnasium, and Rebekah in the background. From the ASC Archives Flat Files.

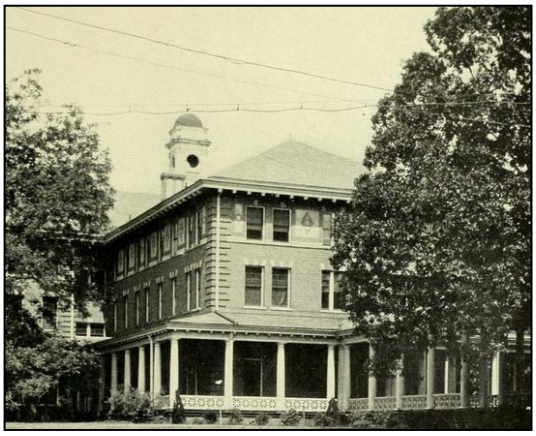




1923 Aerial view of the ASC campus, showing many of the buildings depicted on the 1911 Sanborn Map (previous page). However, the water tower directly behind Rebekah had been demolished by this time.

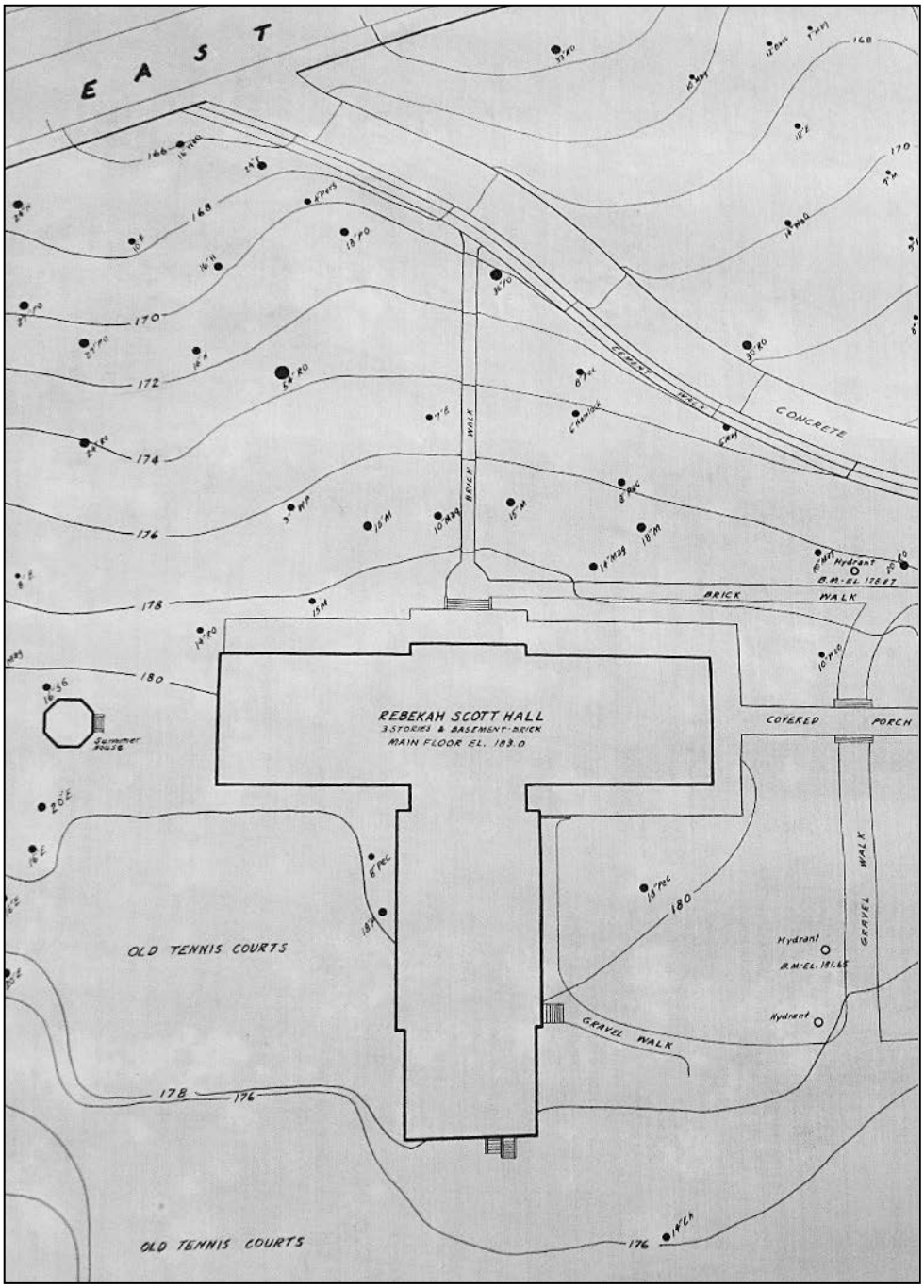
After "the great mosquito battle of September, 1925,"[21] every building on campus was fitted with copper screens. The summer house, formerly in front of Main, was moved to the west side of Rebekah Scott Hall to make way for the new concrete drive and sidewalk, which was installed in 1926 (see map on next page). The structure was enclosed in glass and new steps added; it was renamed the Day Students Hut. The entire campus was graded and planted with grass.[22]

During the Great Depression, the College felt the effects of the national economic upheaval. However, in 1930, the College was able to relocate all electric and telephone wires underground (see photo at right for a "before" image). The school also widened and repaved College Avenue for the City of Decatur.[23] A "white-way" lighting system was installed, greatly improving outdoor lighting on the campus.[24] That same year, Buttrick Hall was completed.



Rebekah from quad with overhead wires. From 1927 Silhouette, p. 16.

[21] *Agnes Scott Alumnae Quarterly*, Vol. 5, No. 1, November 1926, 6.
[22] Ibid.
[23] *Treasurer's Report*, 1930-31, 3.
[24] McNair, *Lest*, 81. In the early 20th century, street outdoor lighting was often called a "white way," after Broadway's nickname, "The Great White Way." It was one of the first streets in the U.S. to be fully illuminated by incandescent lighting.



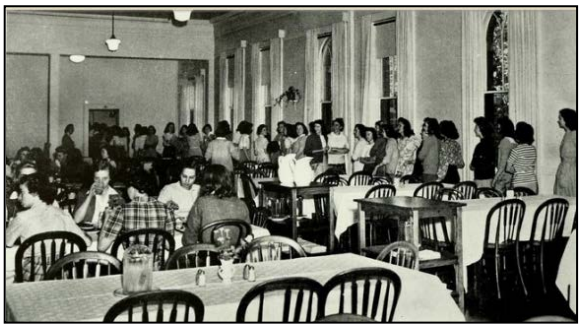
Rebekah detail from the 1922 (updated 1930) topographic map. Note two stairs at the south end: one went up to the kitchen level; one went down to the basement. Note the "Summer House" just west of Rebekah, moved from in front of Main Hall in 1926. Note the campus' new concrete entrance drive and walk, installed in 1926.

In 1936, Rebekah's lobby was refurbished with "gorgeous new furniture and gold draperies to boot", making it "*the* place on campus for dates!"[25]

[25] *Agnes Scott Alumnae Quarterly*, Vol. 15, No. 1, November 1936, 11.

The College was always concerned about fire safety, and Rebekah was originally outfitted with fire extinguishers and fire escapes. During the summer of 1939, the Committee on Building and Grounds authorized the installation of the Grinnell Sprinkler System in the three dormitories: Rebekah, Main and Inman Halls.[26] The fire suppression system in place today in Rebekah is an updated version of the original Grinnell setup.

World War II ushered in the first major change to Rebekah. Much to the regret of the administration, in 1943 the dining hall was converted to a cafeteria, an innovation necessitated by the wartime privations of scarce provisions, uncertain help, and the impossibility of acquiring new equipment, as well as a projected record enrollment for the school. The dining room in the White House was closed, the back wall of Rebekah's dining room was torn down, and a new built-to-order cafeteria service counter installed. Upstairs the former kitchen was transformed into storage and dishwashing facilities, while the actual kitchen was moved to the basement. A dumb waiter brought the food up to the cafeteria. Breakfast and lunch were served cafeteria style, while dinner remained the traditional family-style with hostesses at each table and service provided by uniformed African American waiters. For the first time, students worked in the dining hall serving the evening meal; they did not, however, work in the kitchen.[27] While the hope was that the change was temporary, cafeteria style food service remained until the 1950 opening of Letitia Pate Evans Dining Hall. Rebekah's former dining hall became a recreation room, and is today the Katherine Woltz Reception Room.



The dining hall transformed into a cafeteria with a line for service.

Rebekah's galley kitchen of today had its origins in the cafeteria service counter. Both photos from 1945 Silhouette, p. 164.

The years 1949-50 brought the first overall renovation of Rebekah's residential areas. The initial alteration was to build an elevator shaft and put in a freight elevator which assisted in moving construction materials needed for the building's modernization. New hardwood flooring was laid over the original wood floors, and entirely new electrical wiring was installed throughout the building. New plumbing and fixtures were added, and the bathrooms were tiled. Steel beams were used to reinforce the floor substructure to bear the additional weight of the new flooring and fixtures. Lower, sound-reducing ceilings were installed, and the interior was

[26] *President's Annual Report to the Board of Trustees*, June 2, 1939, 13. The first automatic fire sprinkler head was patented by Henry Parmalee in 1884. Frederick Grinnell, an engineer working for Parmalee, patented his own sprinkler in 1882. By 1890, he had developed the glass sprinkler head, which is basically the same head in use today. In 1892, he formed the General Fire Extinguisher Company, re-named the Grinnell Fire Protection Company after his death in 1919. SimplexGrinnell is today a subsidiary of Tyco, which still specializes in (among other things) fire protection systems.

[27] *Agnes Scott Alumnae Quarterly*, Vol. 22, No. 1, November 1943, 12-14; *President's Annual Report to the Board of Trustees*, May 26, 1944, 6.

painted. The work was completed by the summer of 1950, and the total cost was nearly $74,000 (see table at right).[28]

Remnants of the original knob-and-tube electrical wiring visible above the dormitory bathroom ceilings.

Rebekah Scott Hall Renovation 1949-50	
Item	**Cost**
Steel girders	$ 5,076
Plumbing	$ 11,226
Electrical work	$ 9,454
Ceiling	$ 5,221
Elevator	$ 6,111
Tile baths	$ 7,370
Hardwood floors	$ 11,728
Painting	$ 7,915
Furniture	$ 9,232
Shades	$ 590
TOTAL	**$ 73,923**

In 1956-57, extensive renovations were made to Rebekah, Main, and Inman to bring the buildings in conformance to the Georgia fire code.[29] The Atlanta architectural firm of Ivey and Crook were hired to design the changes to the buildings. Emergency lighting, new time clocks, fire horns, and changing the directions doors opened were some of the smaller changes.

More substantial alterations included the enclosure of the original central stair to create a fire-rated egress to the first floor, and the installation of a new enclosed fire stair at the west end of the west wing. The central stair was enclosed with 4" stud partitions and an access door to the lobby was created (see photos at right). The change required altering the second floor lobby and shortening the width of the second stair run.

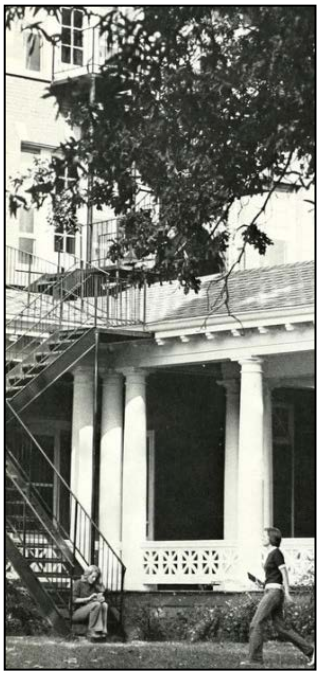
Above: Rebekah's lobby looking east to the open central stair. From 1951 Silhouette, p. 124. Below: same view today with the central stair enclosure wall built 1956-57.

In the west wing, an enclosed wood stair from the first to the third floors was installed along with doors opening onto each floor. On the ground floor, two doors were added leading to the interior rooms of the west wing. A new southwest exit door to the former tennis courts (then an unpaved parking area) was installed with a concrete stoop, stairs, and a pipe handrail. That door and transom had hammered[30]

[28] *President's Annual Report to the Board of Trustees*, June 2, 1950, 8-9. O. V. Scott Electric, Inc., *Electrical Drawings, Agnes Scott College, Rebecca Hall* (Atlanta, GA: March 15, 1949), multiple sheets.

[29] *Annual Report of the President of Agnes Scott College to the Board of Trustees*, June 30, 1961, 5, 23.

[30] Hammered glass is one type of figured glass (also called obscure glass). Figured glass was produced by rolling a textured pattern onto one side of a sheet of molten glass. "Hammered" was one of the patterns, and resembled the marks left by a hammer. Figured glass was called "obscure" because it let light through while protecting privacy. It could also be made into safety glass by embedding wire netting into the glass. Figured glass came into use in the 1850s and was popular for almost 100



New fire escape installed in 1957. From Agnes Scott Alumnae Quarterly Fall 1976, p. 14.

glass instead of the pressed glass[31] originally used in the Rebekah's exterior doors. The windows on the west and south sides of the new stairwell were also replaced with hammered glass.

The old west fire escape was removed from the west façade and reinstalled on the east façade's upper floors. New access doors were created on both upper floors at the east end above the Colonnade to provide access to that fire escape. A counter-balanced fire escape was installed to provide access off the east porch roof to the ground (see photo at right). A vestibule was created around the east door that led from the Colonnade to the former chapel.[32]

The changes to Rebekah continued through the end of the 1950s, with the installation of small utility and refrigerator-stove units on the second and third floors of Rebekah and Main dormitories in 1958, and new washing machines placed in Rebekah and Inman in 1959. In the east wing, the site of the former chapel, several new, small "date parlors" were created, and the freight elevator was removed and replaced with a passenger elevator.[33]

1978 Maintenance for Rebekah Scott Hall
Paint student rooms
Paint porch ceiling
Paint porch floor
Paint reception room
Prime and paint fire escape
Repair and replace screens
Repair stair treads, landing and floor coverings
Replace ceiling in the Development Office
Insulate attic
Install gutter guards on south east side
Change master key system
Close up holes in brick under porch
Repair and clean carpet throughout
Refinish hardwood floor in the reception room
Clean windows on the interior
Replace main water supply to building
Replace faucet washers throughout
Install water saving devices
Install clean-out in main sewer line
Install thermostatic radiator valves
Repair faulty steam traps
Fire extinguisher inspect and recharge

By fall semester in 1959, the one-story former kitchen at the south end of the south ell had been renovated for administrative offices, with a new entrance portico added to the south. The new door necessitated removing the old stairs leading up to the first floor and down to the basement, and bricking up the old doors. The new door was centrally placed, and another window was added to make the south facade symmetrical. That same year the parking lot (the former tennis courts) was paved for the first time.[34]

Over the summer of 1961, Rebekah's exterior was repaired and repainted.

Between 1974 and 1976, a number of the College's

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years. It is stronger than pressed glass. From Demetra Aposporos, "A Look at Figured Glass," *Old House Journal* (September-October 2006), http://www.oldhouseonline.com/a-look-at-figured-glass/.

[31] Pressed glass (also called pattern glass) was made by pouring molten glass into a cast iron mold, often with decorative patterns. Seams are visible in the glass. Patented in the U.S. in 1825 by James Bakewell, pressed glass was inexpensive and easy to mass-produce. It was popular from the mid-1800s until the 1920s. From Sean George, "A Brief History of Antique Pressed Glass," *Pressed Glass and Goblets*, http://www.pressedglassandgoblets.com/articles/history.shtml.

[32] Ivey and Crook, Architects, *Alterations and Additions to Rebekah Scott Hall for Agnes Scott College, Decatur, Georgia* (Atlanta, GA: June 11, 1956-July 13, 1956), multiple sheets.

[33] *Annual Report of the President of Agnes Scott College to the Board of Trustees*, July 1, 1959, 26; *Agnes Scott Alumnae Quarterly*, Fall 1959, 27.

[34] *Agnes Scott Alumnae Quarterly*, Fall 1959, 27.

buildings were re-roofed.[35] The work on Rebekah's roof, completed in 1976, was substantial as extensive damage and deterioration of the wood members and structures was discovered. The slate tile roofing was removed and replaced with composition fiberglass shingles. Repairs were also made to the building's seven brick chimneys.[36] Two years later, additional maintenance tasks were completed at Rebekah (see chart[37] on previous page).

Rebekah Scott Hall's most substantial renovation occurred in 1985-86. Rebekah and Main Hall were both closed for an entire year for the considerable alterations that were made, especially to the buildings' interiors. Architectural drawings by Bailey and Associates describe in detail the many changes that were to occur, some of which never made it off the drawing table.[38] Involved in the renovations were: *Architect:* Bailey and Associates; *Interior design:* Jova/Daniels/Busby Architects; *General contractor:* Foster and Cooper, Inc.; *Engineers:* Tolson, Simpson and Associates; *Landscaping:* Edward L. Daugherty Landscape Architect, Inc.; and *Landscape construction:* Sell and Associates. The following is a list of the major alterations that were actually implemented.[39]

- All of Rebekah's existing wood window sash and stops were replaced with aluminum windows, and the existing wood casings were enclosed with aluminum casings.
- In the east wing, a new enclosed steel fire stair with a partitioned stairwell was installed, which required removal of the fire escapes and conversion of the former exterior doors into windows on the second and third floors. New egress doors were installed on all three floors.
- In the west wing, the partition between the two long rooms (formerly housing the literary societies) was eliminated. A row of four small meeting rooms created along the north wall of the newly enlarged main room.
- The former kitchen basement was divided into mechanical and storage sections.
- In the east wing, the two small southwest rooms (which formerly opened only onto the porch) had their exterior doors enclosed. New interior doors were added to both. The former chapel area became Admissions, and a new large office was created along the south wall for the Director. Also, a door was installed at the southwest corner (see photo at right). It originally had stairs where the accessibility ramp is located today.
- The second floor balcony had a new wood floor and railing installed. The new railing was supposed to match the original, but there are differences in materials, size, and design.
- The electrical system and plumbing were upgraded.

Southwest door into the south ell, installed in 1985-86, originally had stairs where the ramp is today. Date of ramp installation was not determined.

[35] *The President's Report*, 1974-1975, 17.
[36] Summer projects completed or in progress as of September 22, 1976, from the ASC Archives.
[37] *President's Annual Report to the Board of Trustees*, June 2, 1950, 8-9.
[38] Bailey Associates, Architects, *Renovation of Main Hall and Rebekah Scott Hall, Agnes Scott College, Decatur, Georgia*. 1985-86, multiple sheets.
[39] Architectural drawings show a number of changes (such as replacement of the cupolas with fiberglass replicas) which were not implemented.

- The Colonnade was made wheelchair accessible.
- The interiors were painted.
- The dormitory rooms were newly furnished.
- The Alumnae Association undertook to supply new furnishings for the lobby and parlor. Carpets incorporating motifs from the College Seal, designed by Jova/Daniels/Busby in conjunction with Shaw Carpets of Dalton, GA, were placed in the lobby.

August 26, 1986, was moving day, and students were eager to get back into Rebekah Scott Hall and Agnes Scott Hall. Both buildings were rededicated on October 10, 1986, when the costly renovations were celebrated: $1.9 million for Main, $1.7 million for Rebekah. The transformations were hailed as a blend of "modern convenience with period décor to create a quality environment in which to work and live."[40]

Undated photo of the Gazebo in the woods west of Rebekah. From Sayrs and Cozzens, p. 8.

Since the major renovations of the mid-1980s, there has been no substantial work done on Rebekah Scott Hall. In 1987, the College's main quad was rehabilitated and named Wood Quadrangle in honor of George and Irene Woodruff. The Gazebo (originally a well house, the structure has also been known as the Summer House, Day Student Hut, Round House, Meditation Chapel, Bartlett Chapel, and Pi Alpha Phi Hut), was refurbished and moved again, this time to its current location southeast of Rebekah. The photo above shows the structure as it appeared on Rebekah's west lawn.[41] The photo on the next page shows it a couple of years after its relocation to the main quad.

The refurbished Gazebo in May 1989. From Georgia Historic Preservation Division files.

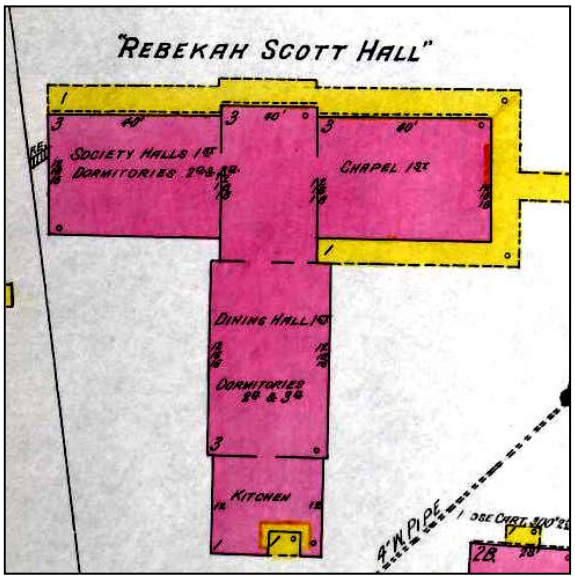
When the City of Atlanta was awarded the 1996 Olympic Games, a flurry of new construction and revitalization took place throughout the metropolitan area. Agnes Scott College was no exception, and in 1995, architectural drawings were drawn by Nottingham, Brook, and Pennington for a permanent air conditioning system in Rebekah. The system was never completely installed, and today Rebekah is only air conditioned on the first floor.[42]

Since 1995, there have been several studies of Rebekah with recommendations for alterations and improvements. Some of these were implemented, but this project is the first major renovation since 1985-86.

[40] *Silhouette*, Vol. 84, 1987, 2.
[41] *Silhouette*, Vol. 86, 1989, 16.
[42] *Alumnae Magazine*, Summer-Fall 1996, 2.

THE ANNEX

This southern, one-story ell is original to Rebekah Scott Hall. It is not a later addition. Its current name, the Annex, is unfortunate, as it connotes something that was appended to the more important historic main building. This section of Rebekah has undergone more frequent and more extreme alterations over time, and is in the worst physical condition of any other portion of the building. A prevalent attitude is that the Annex is expendable, due in part perhaps to the erroneous idea that it is a later, inferior accretion.



Section of the 1911 Sanborn map showing Rebekah, including the south kitchen.

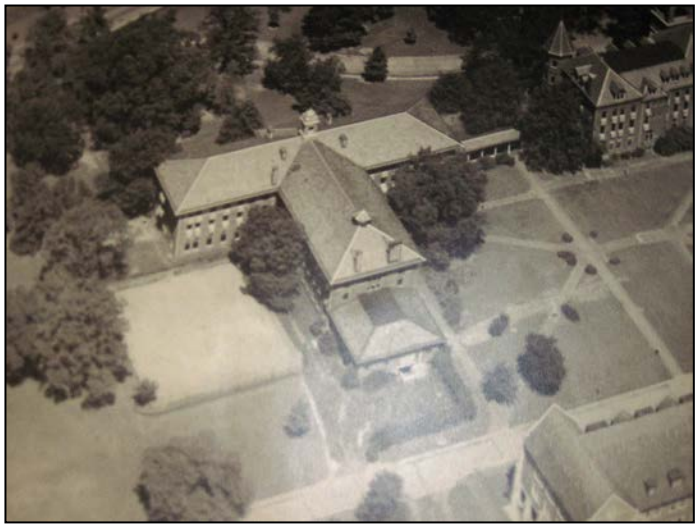
Physical evidence, historic maps, historic photographs, and an understanding of how Rebekah was initially utilized prove unequivocally that the kitchen was original to Rebekah. In the basement of the kitchen, an opening was made at some time into the south crawlspace of the south ell. At this juncture is only one 16" load-bearing brick wall. If the kitchen were a later addition, it is almost certain that a new wall would have been constructed abutting the south ell's brick exterior.

Section from 1923 campus aerial photo. Note off-center, wood-framed back door area and the window wells. From Annual Report of the President to the Board of Trustees, May 28, 1923, p. 4.

The earliest documentation found during this study was the 1911 Sanborn Fire Insurance map of Decatur (see map section above right), which included the Agnes Scott College campus. The map shows the kitchen south of the dining hall (today the Woltz Reception Room) as a one-story, load-bearing brick building with 12" thick walls and a slate roof. In addition, the map shows that there were two entrances on the south side of the kitchen in a section where the wall was wood-framed, not load-bearing brick.

As shown on the 1911 map and a 1923 campus aerial photo (at right), the entrance doors in the south façade of the Annex were located east of center. Close scrutiny of the full-size original of this photograph (available in the ASC Archives Flat Files) confirms that the exterior wall in this area was wood, and one stair led up to the main floor, while another led down into the basement. Another campus aerial (see photo below right), dated 1940-50, shows even more clearly that the façade material was different in this area. It also shows the stairs going down into the basement. The 1922 (updated in 1930) topographic map has both sets of stairs (see page 14).

Further proof of the early construction of the kitchen/Annex is the presence of the window wells, which do not exist anywhere else on the building. In 1905, electric lighting was still something of a novelty and available only to the well-to-do. Then, every advantage would have been taken of natural light in the design of a building. The tall, below-grade basement windows would have provided light and ventilation into an important work space.



Section from 1940-50 campus aerial photo showing the back back of Rebekah. Note that neither southwest door (into the north and south wings) had been installed at this time. From ASC Archives Flat Files.

A basic understanding of how Rebekah was used by the College demonstrates further that the kitchen was original. One of the primary reasons Rebekah was constructed was to provide a dining room that would accommodate the students, faculty, and staff. A large kitchen adjacent to that dining hall was a necessity. There was no information uncovered during this study suggesting that the food served in Rebekah's dining hall was ever prepared elsewhere on campus and had to be delivered from another building. The overwhelming evidence is that the kitchen was an original and essential part of Rebekah Scott Hall. The two entrances in the south side were the working entrances to the kitchen and its basement, and would have been used for deliveries and by the kitchen and dining room staff, who were exclusively African American in Rebekah's early days. In 1906, the year the dining room opened, the servants would not have entered the building through the front door.

The current centrally-located south door, portico, and brick stairs were installed during the 1959 renovation of the Annex at the same time Rebekah's parking lot was paved. The original wood doors and surrounding wood walls and stairs were removed and infilled with brick (see photos on next page). A new door and stairs were installed in a central location on the south wall. A window was inserted east of the new door to make the south façade symmetrical. The new window matches the existing windows, except that concrete instead of limestone was used for the keystone and sill. The 109-year-old limestone sill has held up better than the 59-year-old concrete sill, as the right side of the concrete has broken off. While historic sources document the changes to the south façade, the alterations can also be read in the building materials on the south wall (see photos on next page).

View of the original one-story kitchen/Annex south facade. The 1959 infill-brick area to the right of the present door is quite obvious. Inappropriate repairs to the brick are visible above the left shrubbery. These are discussed in the Load-bearing Brick section below.

Left: The area where the stairs that today lead up to the first floor of the Annex originally led down to a door into the kitchen basement.
Right: The area just right of the columns is where the original door into the kitchen was located. The new window matches the original window (far right), except for the concrete keystone in the jack arch above the window, and the sill beneath the window. The original windows used limestone for both of these architectural features.

ROOFING

Description

The roof was inspected through the attic hatch on May 20, 2014, and via a telescopic boom lift on May 23, 2014. Access to the roof was limited as it is unsafe to walk on the steeply-pitched roof without roofing brackets, which were not available. The investigators wore safety harnesses[43] and were restricted to the areas accessible by the 20-foot tether when they exited the lift basket (see photo at right). The only direct access was in the area of the south cupola. The north cupola, chimneys, other roof penetrations[44], and the surrounding roofing were only observed and photographed from a distance as the lift could not be taken onto the lawn or any landscaped area, and was limited to the southwest parking lot. Because thorough examination was impossible due to these restrictions, the sections of this report assessing the conditions of the various elements near or on top of the building[45] must be considered preliminary in nature.

Southwest view of the south cupola with investigator on tether. Note worn roofing shingles and failed paint.

Composition asphalt-fiberglass roofing shingles show extreme wear and patched areas.

[43] Both investigators wore approved personal fall arrest systems and were tied off to the lift basket at all times.
[44] The roof penetrations, including the cupolas, are examined in detail in later sections of this report.
[45] E.g., roofing, cupolas, chimneys, hood vents, pipe stacks, gutters, cornices, soffits, soffit vents, and eave brackets.

Rebekah's roof is composed of three distinct areas. (1) The main building has a hipped roof with a pitch of 6/12, or 26.5°.[46] (2) The kitchen/Annex has a mansard roof, which consists of two sections. The top section is very low-sloped, with a pitch of about 2/12. The lower section of the roof is 6/12. (3) The porch roof is somewhat lower-sloped, about 4/12.

Different roofing materials are appropriate for roofs with different slopes. Slate shingles must be installed on roofs with a pitch of 5/12 or higher. On a lower-sloped roof, water cannot drain quickly, and it penetrates between the slate tiles, damaging the wood roof structure below. Slate shingles are more susceptible to leakage than composite or asphalt shingles, because they do not lock together as tightly or lay as flat. On very low-sloped roofs, with a pitch of 1/12 to 3/12, slate, composition, or asphalt shingles are not appropriate. Instead, some type of rolled or modified bitumen roofing is required to provide the watertight seal necessary during the slow drainage of water. In general, asphalt or composition shingles are the most serviceable type of shingle in terms of roof pitch. They can be installed on a roof as low as 4/12 pitch or as high as 12/12 pitch.

Composition shingles have a central fiberglass mat that is coated with asphalt and mineral fillers. The fillers adhere to the fiberglass and the asphalt makes the structure waterproof. The top surface is embedded with a layer of ceramic granules, which are dense, non-porous, and resistant to the sun's ultraviolet rays.

The current composition asphalt-fiberglass shingles were installed during the 1975-76 roofing project, and are only the second roof Rebekah has had in its 109 years. They are nearly 40 years old and are in extremely poor condition (see photo on preceding page). Many of the ceramic granules on top of the asphalt base have worn off; the remaining granules are loose and easily displaced when walked upon. The asphalt layer, which makes the shingles waterproof, has worn away, exposing the fiberglass strands beneath. The shingles are discolored, and sections have been patched with replacement shingles that do not match. Fortunately, the attic does not show any signs of ongoing water leakage, so for the moment the shingles are still keeping the weather out. However, it is strongly recommended that they be replaced as soon as possible.

Slate tiles beneath the south cupola flashing.

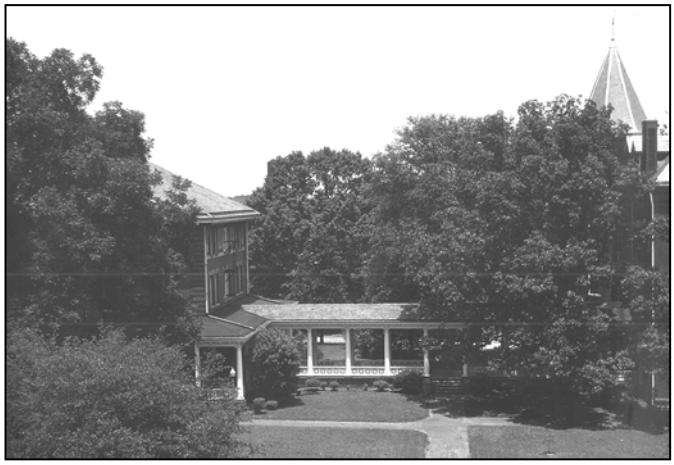
The investigation did reveal the presence of slate roofing tiles on the side of the south cupola beneath the fiberglass shingles (see photo at right). The 1911 Sanborn Fire Insurance map indicates that Rebekah originally had either a tin or slate roof, while historic photographs confirm that it was slate (see photo on next page).

Sometime after 1927, the slate tiles on the porch roof were replaced with asphalt roll roofing, but the rest of the building's roofing remained slate tile. The early switch to roll roofing on the porch was almost certainly a drainage issue, as the slate tile shingles would not have been able to adequately drain stormwater off the shallow slope of the porch roof.

In 1975-76, the slate tiles were removed and composition asphalt-fiberglass shingles were installed. Documents indicate that there was extensive damage to the roof's wood structural members, which would explain why the original rafters and decking were completely replaced. The present roof structural members are not capable of supporting a slate roof without some

[46] The 6/12 pitch was calculated by John Hutton, PE, SE, Principal at Uzun+Case, the structural engineering firm on this project.

reinforcement. Should a slate roof be considered, a structural engineer must be consulted to provide the necessary specifications.



Undated photo but post-1930 when the campus wires were placed underground, new outdoor lighting was installed, and Buttrick Hall was built. This photo was taken from Buttrick looking north toward Rebekah and the Colonnade. Note the rolled roofing on the porch. Slate tiles on the roofs of Rebekah and the Colonnade are clearly visible in the original image. From the ASC Archives.

The Annex has a mansard roof (see photo at right). The bottom slope, with a steep 6/12 pitch, originally had slate tile roofing, but now has composition asphalt-fiberglass shingles. The top slope of the mansard is currently covered with rolled EPDM[47] rubber roofing, which is necessary due to its very shallow pitch. It was probably originally roofed with a type of rolled asphalt roofing, which was in widespread use by the late 1800s in the United States. The present rubber roofing is worn and patched, and should be replaced. The shingles are in fair condition, and show signs of wear. Most disturbing is the flashing between the two roof sections. The metal, once painted white, has lost much of its paint, and the exposed metal beneath is rusted. The flashing needs to be replaced (see recommendations on next page).

Mansard roof on the Annex. Top section is worn and patched; shingles are worn; flashing is rusted.

The roofing shingles on the porch and Colonnade are in good condition, and appear to be newer than the roofing on the main building. It is likely these shingles were replaced during the 1985-86 renovation.

Colonnade (right) and porch (left) roofing shingles are in good condition.

[47] Ethylene Propylene Diene Monomer is a type of synthetic rubber.

Flashing and Roof Penetrations

Rebekah has seven chimneys and two wood cupolas. While it was impossible to inspect them all, it was obvious that a number of them have extremely deteriorated flashing. Flashing is a key roofing component that directs the flow of water around the roof opening. In addition to the chimneys, there are hood vents, pipe stacks, and other roof fixtures also with deteriorated flashing (see photo at right and Annex roof photo on preceding page).

Deteriorated flashing on chimney and pipe stack.

All the roof penetrations need to have their flashing replaced (see more photos on pages 79, 82). The new flashing should include replacing the crickets on three chimneys: the two chimneys on the south ell, and the small chimney on the southwest side of the main building. Each of these chimneys is at the bottom of a roof slope, and their crickets deflect water from the opening in the roof at the chimney base. If composition or asphalt shingles are used to re-roof the building, they can be installed over the crickets. It is strongly recommended that a two-layer flashing be installed, with both step- and counter-flashing. Copper flashing lasts the longest and can be soldered for a watertight connection. However, it is the most expensive option, and aluminum or galvanized steel are acceptable alternatives. Plastic flashing, usually PVC-based, is less expensive than metal, but it can wear quickly in direct sunlight. Plastic flashing is not recommended for use on Rebekah. A high-quality urethane caulk should be used to seal seams. Flashing should be inspected once a year.[48]

Slate Roofing

The College may want to consider re-installing slate tile roofing on Rebekah Scott Hall as part of this rehabilitation project, but only on the roof of the main building and the bottom slope of the Annex roof. There are a variety of options available, including real slate tiles, composition faux slate, and clay tile (ceramic) faux slate. Neither slate tile roofing nor any of the faux slate products should be installed on the top section of the Annex roof, the porch roof, or on any of the porticos.

A primary argument in favor of slate roof replacement is that it was the original roofing material on Rebekah, and slate has been the roofing material of choice for the architects who have designed ASC's historic buildings. It would match many of the other campus buildings. Slate has a classic appearance, and is appropriate for an Italian Renaissance Revival style building. It can last 150 years or more, if it is correctly installed and the underlying roof structure is properly constructed. Slate is completely fire proof and is environmentally friendly.

The arguments against slate are that it is heavy, expensive, rigid (and thus subject to breakage), and is often incorrectly installed by inexperienced contractors. A single, three-tab asphalt shingle or asphalt-fiberglass composition shingle weighs 2.7 pounds per square foot. A single

[48] Danny Lipford, "Leakproof Flashing," © 2014 Time Inc., http://www.thisoldhouse.com/toh/article/0,,194076,00.html; "All About Roof Flashing," © 2009 Dorling Kindersley Limited, http://www.diynetwork.com/home-improvement/all-about-roof-flashing/index.html.

slate tile can weigh between 9.1 and 26 pounds per square foot, depending on the thickness of the tile. Slate tiles range between ¼" and ¾" in thickness. As was mentioned previously, it will be necessary to have a structural engineer make recommendations for the modification of Rebekah's current roof structure to enable it to carry the weight of slate tile roofing.

An alternate to true slate is composition faux slate, which comes in two types. Architectural asphalt shingles can be cut and layered to give a slate-like appearance (see photo below left).

Architectural asphalt shingles cut and layered to look like slate, on the Victorian Annex to the Redwood Library in Newport, RI.

Synthetic shingles can also be manufactured using resins, rubber, and plastic giving a surface that mimics slate (see photo below right). These shingles have a smooth headlap. The advantages of composition faux slate is that is it lightweight, economical, comes in a variety of colors, and does not require additional roof support. These types of faux slate last as long as typical asphalt shingle roofs, from 10 to 30 years depending on the quality of the product.

Synthetic shingles that mimic slate, on the Visitors Center of the Sechuest National Wildlife Refuge outside of Newport, RI.

Another alternative is clay tile (sometimes called ceramic) faux slate. One trade name for this type of faux slate is LudoSlate™ (see photo at right). These tiles are made of fired clay, and are textured to look like slate. The tiles are ¾" thick and come in a variety of widths and colors. They weigh about 10.8 pounds per square foot, are non-combustible, and have a 75-year warranty. Clay tiles are also recyclable, and their installation can earn LEED credits.

Clay tile faux slate. Photo from http://www.ludoslate.com.

As the College examines its roofing options for Rebekah, the U.S. Secretary of the Interior's Standards for Rehabilitation (see Appendix F) should be followed. Under these standards, any of the above treatments would be appropriate. Roofing is considered an impermanent feature which can always be replaced. The College, by financial necessity, may decide to simply replace the current composition shingles; this is an acceptable choice from a preservation standpoint. Whichever option is selected, however, it will be very important to **locate, carefully remove,** and **save** any of the remaining original slate tiles to be used as a template for replacements, guiding the choice of tile or shingle reveal size, color, and texture. In addition, at least one tile and accompanying nail should be photographed and conserved in the ASC Archives.

Roofing Recommendations

The following recommendations are for all of Rebekah's roofs, including cupolas, porch, main building, Annex, and Colonnade.

- It is imperative that all areas of the roof be examined thoroughly, including all of the chimneys, both cupolas, and any vents or other roof penetrations by a roofer experienced with historic institutional roofs. Adequate recommendations for any repairs or replacements cannot be made at this time due to limited roof access.

- Flashing at all the roof penetrations (such as cupolas, chimneys, pipe stacks, and hood vents) should be replaced.

- All limbs, leaves, and debris should be removed twice a year. These items accumulate particularly on low-slope roofs (see porch roof photo at right). They trap moisture and hold it against the roofing, accelerating the deterioration of any roofing material that is installed.

- Prune overhanging trees to remove any old branches that could fall on the building.

Leaves and branches on porch roof.

- Have an arborist conduct annual inspections of all tall trees with a potential for dropping limbs or falling on the building.

- The following actions (in order listed) are recommended for the main building's roof, and the steep-slope section of the Annex roof:

    1. Remove the current shingles to the wood decking.

    2. If the decision is made to install slate roofing, it will be necessary to have a structural engineer make recommendations for the modification of the current roof structure to enable it to carry the weight of slate tile roofing. The wood decking will need to be removed completely, then proceed with any structural alterations recommended by the engineer. Install new wood decking.

3. Any slate tiles found during the removal of the asphalt shingles SHOULD BE CAREFULLY REMOVED AND SAVED (there will not be many). These tiles are part of the original construction and should be used to inform new roofing choices. In addition, at least one original slate tile and nail should be photographed and conserved in the ASC archives.

4. Install a self-adhering bituminous membrane in the valleys of the hipped roof, along drip edges, over the hips and ridges, and around any roof penetrations.

5. Install a new asphalt-saturated felt underlayment over the wood deck.

6. If new slate tile roofing is installed, the tiles should match the historic slate tiles in shape, size, thickness, and color. NOTE: only a roofer with documented experience in the installation of slate roofing should be employed. Most modern roofers do not have the expertise to install a slate roof properly.

7. If new slate tile roofing is not chosen, install new 40-year composition asphalt-fiberglass shingles or one of the faux slate tile alternatives.

- Recommendations (in order listed) for the low-slope section of the Annex's mansard roof are as follows:

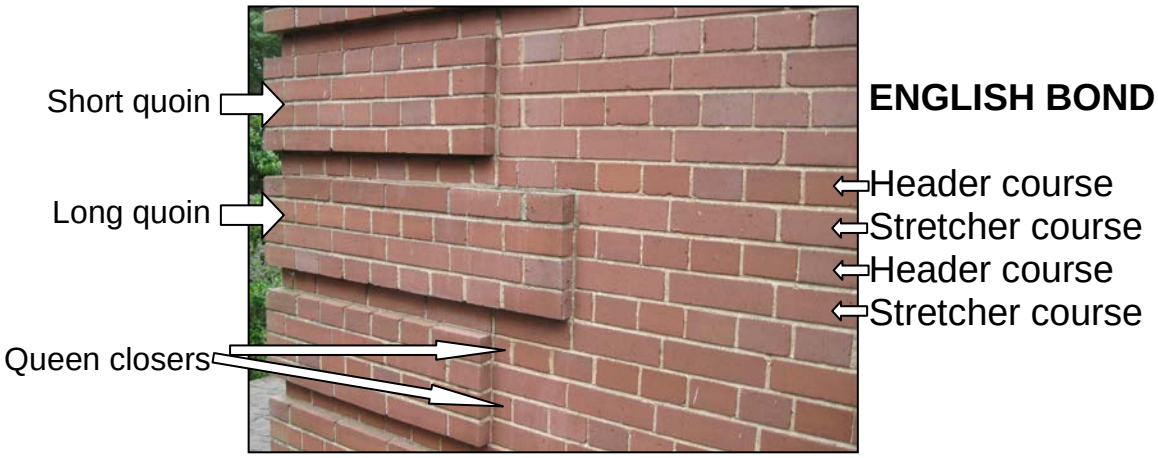
    1. Remove the existing rubber roofing to expose the wood deck.

    2. Install a cold-process built-up roofing system, either a modified bitumen roofing membrane using bituminous cold-process adhesives, or a cold-applied liquid monolithic membrane system. Either is appropriate in a low-slope area and should last longer than rubber roofing.

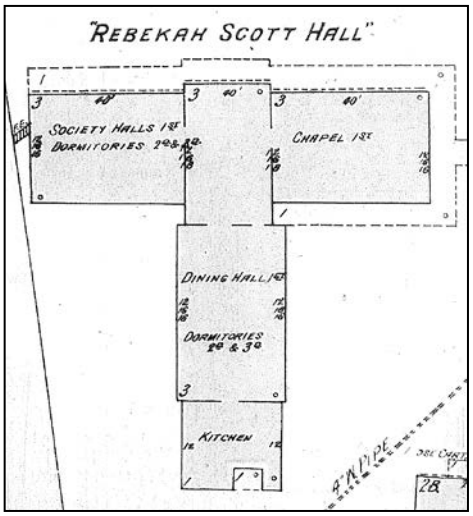
LOAD-BEARING BRICK WALLS

Description

Rebekah's exterior walls are composed of load-bearing brick[49] laid in English bond pattern, which consists of alternating courses of headers and stretchers, creating a subtle horizontal striping effect. Queen closers[50] were used to even out the courses. The bricks measure approximately 8" x 3⅞" x 2½", while the queen closer bricks are 1⅝" wide. Brick corner quoins consisting of four courses of English bond are 10½" tall, and alternate longer (41¾") and shorter (33$^{3}/_{16}$") courses. The English bond pattern is continued through the quoins. The horizontal mortar joints are roughly ½" wide, while the vertical mortar joints are ⅜" wide.



The exterior walls are 16" thick on the first and second floors of the three-story sections of the building, and 12" thick on the third floor. The load-bearing brick interior walls of the main building are also 16" thick on the first and second stories, and 12" thick on the third story. The wall thicknesses are from the 1911 Sanborn Fire Insurance Map for Decatur, Sheet 8, which shows Agnes Scott College (see map section at right). This investigator also was able to access an opening in the north wall of the kitchen/Annex basement which measured 16" thick; that is, four wythes[51] thick.



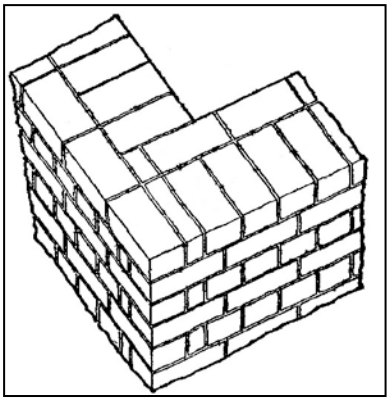
[49] Previous reports (Nova 2007; Lord, Aeck & Sargent 2011) were uncertain or incorrect about the construction of Rebekah's walls. Exposed areas enabled physical inspection of the load-bearing brick wall structure, which was reinforced by historic photographic evidence.

[50] Queen closers are full-length bricks which are less than half the width of a regular brick; that is, they are half or less than half the width of a header.

[51] "Wythe" is defined as "a continuous vertical section of a masonry wall one unit (i.e., one brick) in thickness." From Francis D. K. Ching. *A Visual Dictionary of Architecture*, 2nd ed. (New York: John Wiley & Sons, Inc., 2012), 163. Rebekah's four-wythe thick walls were the thickness of four bricks plus three mortar joints.

Load-bearing Masonry

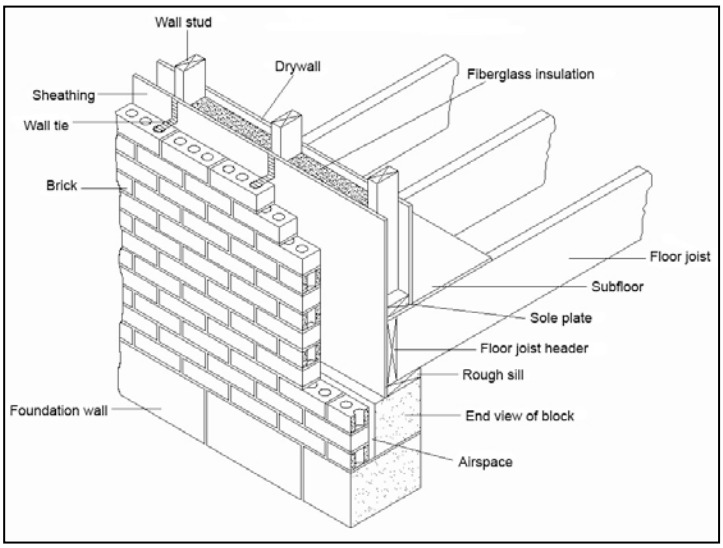
In order to comprehend the types of problems that can occur with historic brick walls, it is first necessary to understand load-bearing brick construction. The illustration at right[52] shows a three-wythe thick brick wall constructed in the English bond pattern, exactly as Rebekah's third-story walls were built.[53] The bricks form solid walls which support the entire structure.



Load-bearing, 3-wythe thick, English bond brick wall.

Load-bearing masonry construction was the most widely used form of construction for large buildings in the U.S. from the 1700s to the first quarter of the 1900s when veneering techniques were perfected. It essentially consists of thick, heavy masonry (that is, brick or stone) walls that support the entire structure, including the horizontal floors. The key concept with this type of construction is that every wall acts as a load-carrying element. Openings in the load-carrying walls for doors or windows are carefully placed. Too many openings, large or small, will compromise the structural integrity. The immense weight of the walls helps to hold the building together and stabilize it against external forces.[54]

Load-bearing brick construction is very rarely used today as it is requires a large quantity of heavy materials, is labor intensive--needing skilled masons to lay each brick by hand, and it does not perform well in earthquakes. In contrast, most construction today is frame construction using light but strong materials that support floor slabs. It has thin walls (see diagram[55] right), and is much lighter than load-bearing construction.[56]



Modern wood frame construction with brick veneer exterior.

Because Rebekah's brick is load-bearing and therefore structural, careful attention must be paid to the condition of the bricks and mortar composing the walls. In a modern frame building with brick veneer, the brick can be lost without any harm to the building. For Rebekah, ***any*** loss of brick is a serious problem that ultimately could lead to unstable, unsafe walls.

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[52] Encyclopaedia Britannica, "Brickwork", Vol. 4, Part 3, 11th ed. http://dita2indesign.sourceforge.net/dita_gutenberg_samples/dita_encyclopaedia_britannica/html/entries/entry-d1e3434.html.

[53] The walls on the first and second stories are thicker and are four or more wythes thick.

[54] "Understand Building Construction." © 2014 UnderstandConstruction.com. http://www.understandconstruction.com/load-bearing-masonry-construction.html.

[55] Andrew Huff, "Brick Veneer Construction Detail," December 10, 2010, modified by L. M. Drummond. http://bhsindustrialtechnology.blogspot.com/2010/12/brick-veneer-construction-detail-by.html.

[56] "Understand Building Construction."

Conditions

Overall the brick is in good condition, with some notable exceptions. In exposed areas and areas of high moisture, there is significant mortar loss. Inappropriate repairs, poor drainage, lack of gutters, and dense shrubbery have caused rapid deterioration of both bricks and mortar, particularly on the Annex, the east foundation, and the porch foundation.

All the brick needs to be cleaned. The dirt comes from a variety of sources: splashback from the soil, wind- and rain-born debris, excessive moisture, poor drainage, and mortar loss. Human intervention has caused some of the problems, such as the "ghost" marks left behind when the fire escapes were removed from both the west and east facades (see photo at right). The structures were removed, but their black marks on the facades remain on the limestone window sills as well as the brick. While most dirt is not damaging, it is unsightly, and should be removed. The appropriate ways to clean masonry are discussed below; see also Appendix G for a technical brief on cleaning historic masonry.

Black marks left when west fire escape was removed.

Mortar loss is a serious problem, and its repair should be given a high priority. One area of mortar loss is illustrated on the next page. At the recessed west juncture of the south and north wings, the bricks are in very good condition, but the mortar has disintegrated. The deteriorated section of the wall needs to be repointed.[57] See the section below and Appendix H for more detailed information on repointing historic mortar joints.

The decision to repoint is usually related to some obvious sign of deterioration, such as disintegrating mortar (in the example below), cracks in mortar joints, loose bricks, or damp walls. It is, however, erroneous to assume that repointing alone will solve the mortar deficiencies that result from other problems. The root cause of the deterioration--whether it be leaking roofs or gutters, differential settlement of the building, capillary action causing rising damp, or extreme weather exposure--should always be dealt with prior to beginning work. Without eliminating the root cause of the problem, mortar deterioration will continue and any repointing will have been a waste of time and money.[58]

In the case shown on the next page, the cause of the failed mortar is difficult to identify, especially as the bricks are in good condition, the area is protected from harsh weather and excessive moisture, and its higher (and drier) location means that rising damp through capillary action is unlikely. It is probable that the batch of mortar used in this location was inferior, and lacked the proper amount of lime to make it hydraulic[59]. Such a situation will cause the mortar to leach away, leaving only the sand, which is what has happened here. It is recommended that this section be repointed before any more mortar is lost or bricks begin to fall out.

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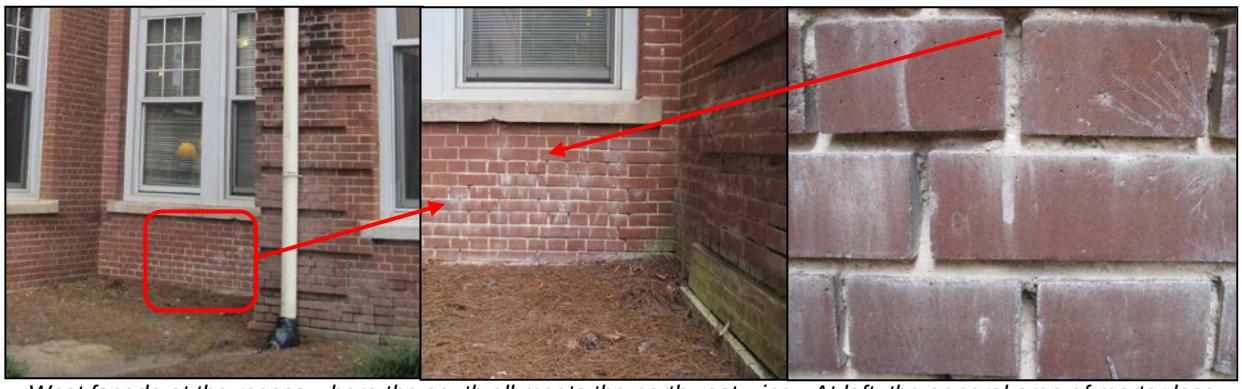
[57] "Repointing" is often called "tuck pointing" in the United States. However, that phrase refers to a different procedure elsewhere in the world, and can be a source of great confusion. "Repointing" is universally understood.

[58] Robert C. Mack and John P. Speweik, Repointing Mortar Joints in Historic Masonry Buildings, Preservation Brief No. 2 (Washington, DC: Technical Preservation Services of the National Park Service, rev. October 1998), 2.

[59] Able to harden in wet or damp conditions and not leach out when exposed to water.



West façade at the recess where the south ell meets the northwest wing. At left, the general area of mortar loss beneath the windows; middle, a direct view under the south window; at right, close-up of the mortar, reduced to sand falling out of the joints onto the bricks and the ground.

Other areas where there is significant mortar loss include:

1. By the downspout on the east side of the building, immediately south of the porch (see photo #1). The deterioration in this area is due to excessive moisture caused by the open downspout connection, as well as the encroaching shrubs and the porch overhang—two features which keep the area shaded and damp. The result is loss of mortar and efflorescence from the bricks (see discussion on efflorescence below).

1. East façade by south porch; bricks showing mortar loss.

2. Along the east foundation of the south ell (see photo #2). The plastering of modern concrete over the bricks to cover some unseen problem is an egregious repair—unsightly as well as damaging to the surrounding brick. The area above it shows mortar loss, and to the right is efflorescence caused by rising damp.

2. East façade foundation with multiple brick problems.

3. Along the north and northeast sections of the porch foundation. There are many areas where mortar loss is so extreme that dark voids between the bricks are visible (see photo #3). These problems do not occur on the west end of the porch, or on the south sections of the porch foundation because these areas receive direct sunlight and are not heavily shaded by trees. On the north and northeast sections, however, there is less sunlight due to the many large trees that overshadow the north facades of Rebekah and the Colonnade. The lack of proper drainage from the porch roof, coupled with the dense shade, serves to keep the north porch in a state of nearly continuous damp, a

3. Northeast porch foundation with loss of mortar, efflorescence, and dirt.

condition exacerbated by the lack of proper ventilation for the porch foundation. It is no surprise that the brick in this area shows mortar loss, efflorescence, microbial growth of various types (including mildew), and dirt accumulation. An additional problem caused by this continuously damp microclimate is the mildew on the ceiling of the north porch. This issue will be discussed in the section on the Porch below.

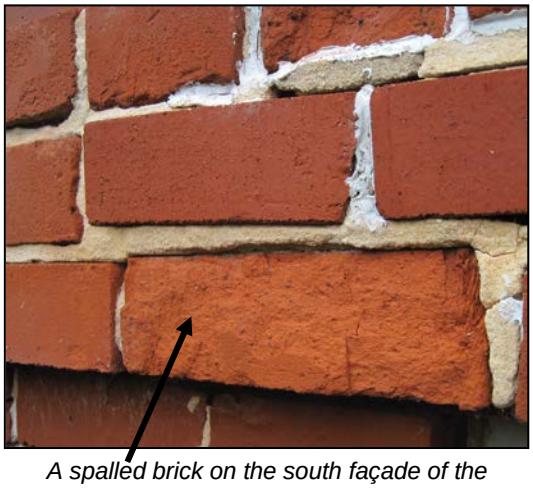
4. The south and east façades of the kitchen ell (the Annex). There are many issues confronting the brick on the Annex, including mortar loss; these are addressed below.

Interior east wall of the Annex. Note the salt crystals deposited on the surface of the bricks. This is an extremely wet area, and much of the plaster has already fallen off the brick wall.

<u>Causes of Brick Deterioration</u>

All bricks and mortar contain salts which occur naturally in the clay and sand from which they are formed. Salts are soluble in water; when the water evaporates, they re-crystallize.

Efflorescence is the deposit of soluble salts on the surface of bricks, forming a whitish film, which is unattractive but basically harmless (see photo above right). It is, however, a sign that the area is continuously damp. ***Subflorescence*** is when soluble salts are deposited below the surface of a brick. Again, when the water evaporates, the salt crystallizes, but inside the brick. Salt that is crystallized is larger than when it is in solution. The large salt crystals put pressure on the brick from the inside, causing the outer surface of the brick to delaminate—a process known as ***spalling*** (see photo below right).



A spalled brick on the south façade of the Annex. Note other bricks, especially at the top, which are beginning to delaminate. Spalling was caused by inappropriate mortar repairs.

Microbial growth is a term applied to a range of microscopic plants and fungi (e.g., algae, mildew, mold, rot) that can grow on the surface of building materials and cause deterioration. When they grow in large colonies, they become visible to the human eye. Individual removal suggestions are made for each type; however, an overall cleaning strategy for Rebekah's brick walls is discussed below.

1. ***Algae*** is a term applied to a large, diverse group of organisms, all of which need water to survive. Because brick is porous, it is an attractive surface for green algae when wet. If left to accumulate, algae can cause the brick to deteriorate by growing into the brick and causing it to split over time. Algae can be scrubbed off with a soft bristle brush or sponge using a mixture of vinegar and water.

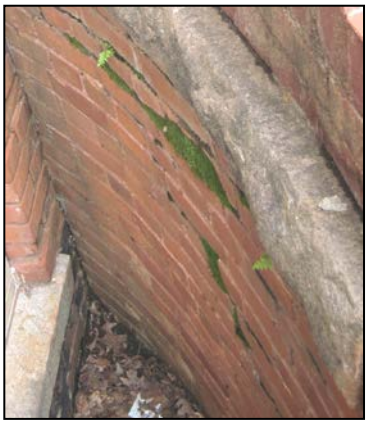
2. ***Mildew*** is a thin, harmless, superficial fungus, easily washed off the surface of brick or wood. It is considered a precursor to more serious fungi (such as molds and rots) that can seriously damage building materials and be harmful to humans. Mildew can be

removed by washing with a solution of 1 cup of non-ammoniated detergent, 1 cup of bleach, and 1 gallon of water. Scrubbing with a soft bristle brush may be necessary.

3. ***Mold*** is a generic term for fungi, of which there are thousands of species. Molds come in a variety of colors and have a fuzzy appearance. They degrade organic materials and when airborne, cause illness in humans. Once mold is identified, it should be removed with an antimicrobial cleanser as soon as possible, as it spreads rapidly.

Listed below are some plants that can grow on or near a building and, over time, can cause harm. The damage that can be done by these factors should not be underestimated.

1. ***Moss*** (see photo #1) is a type of plant of which there are thousands of species. Moss requires a very damp environment to thrive and, like all plants, sunlight to conduct photosynthesis. Moss growing on the surface of brick or wood is an indicator of an accumulation of soil. Moss, therefore, signals a dirty and wet environment. The moss itself will also hold water against the surface of the building material, compounding the problem. It should be removed (typically an easy task), and the sources of the damp conditions eliminated; otherwise, it will regrow quickly. Moss can be removed with water and baking soda or vinegar. Certain kinds of soap and borax are also recommended.



1. Moss growing in the brick of one of the Annex's basement window wells.

2. ***Lichens*** (see photo #2) are a combination plant and fungus that live in symbiosis, and can thrive in extreme environments. Unlike moss, they have a root-like structure which enables them to adhere tightly to surfaces, as they can extend their rhizines into small, shallow cracks and fissures. These "roots" make lichens extremely difficult to remove, and, when they are dislodged from a surface, often part of that surface comes off with them. This can happen on brick, wood, roofing, and painted surfaces. Removal of lichens is difficult, and can be more harmful to the surface of the building material than just leaving them in place. A biocide is the only chemical way to eradicate lichens completely, but is toxic to the environment, many building materials, and the human operator. Physical removal seldom extracts the lichens entirely, and usually peels off building surfaces with it.

2. Lichens growing on top of the brick shelf above the porch roof.

3. ***Trees, shrubbery, climbing plants and vines*** which come in contact with a building can be harmful. A plant growing on or against a building's surface attracts and holds moisture (see photo #3). The roots can damage the surface on which it is growing. Plants also provide access

3. Shrubs crowd the east foundation.

to the roof and openings for small animals such as raccoons, squirrels, and other rodents. Overhanging trees, or their branches, can fall on a building, often causing a great deal of damage. Branches that touch the building can be abrasive and the scraping caused when the wind blows can harm brick and wood.

4. ***Trees and shrubbery*** do not need to actually touch the surface of a building to cause harm. Dense bushes or tall, overhanging trees create a shady and damp microclimate that invites the growth of all the plants and fungi listed above. The retention of moisture is facilitated in such an area, and hastens deterioration of brick by rising damp and subflorescence.

View from Rebekah's porch looking over the front stairs and walkway. This photo was taken January 20, 2014, a bright, crisp winter day with the leaves off the trees. Note how the evergreen magnolia prevents any sunlight from reaching the building. See photo on page 75 for a rainy day view with water pouring onto the front steps from the porch roof, which has no gutters.

The front entrance of Rebekah suffers from a dark and damp microclimate caused primarily by two factors: (1) the two tall, dense *Magnolia grandiflora* trees which flank the front stairs (see photo above); and, (2) the lack of gutters and effective drainage on the north front porch (see Drainage section below for details). Because the trees are evergreens, there is no time throughout the year when the shade of their thick leaves is not impacting the building. It is strongly recommended either the trees be removed and small trees planted in their stead, or the present trees be limbed up at a greater height (so the head begins six or more feet off the ground), providing a high shade.

As the 1906 photograph on page 5 illustrates, Rebekah Scott Hall is a landmark historic building with an imposing front façade. Its appearance cannot today be appreciated because it is hidden by foliage (see cover photo). Its front entrance is dark and damp (see photo above), and on a rainy day oppressive and uninviting (see Drainage section below). As the campus building which houses the Admissions Office and is the first stop for prospective students and their parents, Rebekah needs to be a bright, welcoming venue.

Understanding Historic Bricks and Mortar

Perhaps the greatest masonry problems on Rebekah are the inappropriate repairs that have been made over time. Virtually every repair to the brick was done incorrectly. The replacement bricks do not match the original bricks either in size, color, texture, or finish. Also, and perhaps more importantly, the mortar used to make the repairs does not match the historic mortar in composition, color, texture, joint size, or joint profile, and is contributing to the deterioration of the historic brick.

While no documentation was located on the site or method of manufacture of Rebekah's bricks, they were probably made from a stiff mud that was put through an extrusion press. The bricks would then have been cut with a rotating wire, giving them their crisp, angular edges. Bricks manufactured at the beginning of the twentieth century (such as Rebekah's) are more porous than modern bricks. They were fired at lower temperatures (around 1850°F) compared to the much higher temperatures achieved in modern kilns (up to 2400°F in the vitrification stages of firing). It is important that any replacement bricks used in repairs on Rebekah be custom manufactured to match the existing historic bricks.

Historically, mortar acted as a bedding material, more like an expansion joint to minimize stress on the bricks than "glue" to make the bricks adhere to each other. As a historic building, Rebekah does not have a vapor barrier, and the moisture within the building has to escape through the building's envelope—through the thick brick walls. The original mortar was weaker and more permeable than the brick, so moisture was able to migrate through the mortar joints instead of through the bricks.

Mortar is intended to be sacrificial, and it is always more desirable for the mortar to fail than the actual bricks, as it is more easily repaired and less costly. It should be accepted that repointing historic mortar will be required at some time. However, much of Rebekah's historic mortar has proved to be durable for nearly 110 years. Careful repointing should have an equally long lifetime, and will contribute to the preservation of the building.[60]

Historic mortars, prior to 1872 in the U.S., did not use Portland cement. Instead, impurities in the lime used in the manufacture of historic mortars rendered them hydraulic (that is, able to harden in wet or damp conditions and not leach out when exposed to water). That lime-based historic masonry has withstood the ravages of time is a testament to the better hydraulic properties of some of these early mortars.[61] Pure lime, such as is used in modern mortars or purchased in a home improvement store today, is not suitable for mortar because it lacks the pozzolans[62] that provide the necessary hydraulic properties to make the mortar viable. Those properties are achieved in modern mortar by the addition of Portland cement, which was patented in the United States in 1872. Since that time Portland cement has gradually become an essential ingredient in mortar mixes, but it was not in widespread use until the 1920s.

Portland cement is quick-setting, inexpensive, and strong—attractive qualities in a mortar. However, it is generally more rigid and less permeable than historic mortars and even historic bricks. The use of Portland cement in mortar to repoint an early twentieth century brick can

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[60] Mack and Speweik, 4, 16.

[61] Dik Coates, *Historic Brickwork, Description, Deterioration, and Restoration*, 2008. http://www.slideruleera.net/Historic_Brickwork.pdf.

[62] "Pozzolan" is defined as a "finely divided siliceous [containing silica as the principal component] or siliceous and aluminous material that reacts chemically with slaked lime at ordinary temperature and in the presence of moisture to form a strong slow-hardening cement," from Merriam-Webster Online Dictionary, © 2014, Merriam-Webster, Incorporated. http://www.merriam-webster.com/dictionary/ pozzolana.

damage the brick during thermal expansion and contraction (which occurs daily and seasonally), and breaks the rule that *mortar must always be weaker than the masonry*. Lime-based mortars have lower compressive strength, and allow the bricks to expand and contract without being damaged. Lime-based mortar is also able to move with the settlement of a wall over time, sealing cracks that develop.

It is important to understand that softness and hardness are not necessarily indicators of permeability. Some very hard historic lime-based mortars retain high permeability.[63] Portland cement is very hard and impervious to water, unlike porous historic brick. If Portland cement is an ingredient in a mortar applied to Rebekah, water will be trapped and can only escape through the historic brick. The water pressure builds up in the brick until the surface of the brick pops off, exposing the more vulnerable interior of the brick—the condition called ***spalling*** (see page 37 for a photo). Using an incompatible mortar, especially one that contains Portland cement, can literally destroy a historic masonry building over time. "Failure to use the correct mortar can and, sadly, has caused irreversible damage to the surrounding building fabric,"[64] a statement which, unfortunately, applies to Rebekah.

A complicating factor in a high-style building, such as Rebekah, is that two types of mortar were used in the construction of its brick walls. ***Bedding mortar*** is the basic mortar used to lay the bricks. It is typically a softer mortar with specific properties to ensure greater longevity of the wall. ***Pointing mortar*** is used on the exterior of the joints, and usually contains a higher lime content to resist weathering. While supple, pointing mortar is usually denser and harder than bedding mortar. Also, pointing mortar is frequently tinted in colors. For example, pointing mortar might be tinted with brick dust to create mortar matching the adjacent brick. It is very important that bedding mortar be analyzed separately from pointing mortar.[65]

*Close-up of Rebekah's mortars. The **pointing mortar** (at left) is harder and darker (a tan color) than the **bedding mortar** (at right), which is lighter (white) and softer. The use of both is an indication of the high degree of craftsmanship that went into the construction of the building.*

Both bedding and pointing mortar samples were collected from Rebekah and sent out for laboratory analysis (see Appendices D and E for the results of the mortar analysis). The pointing mortar had more lime than the bedding mortar, and had a light tan color. Neither sample was found to contain any Portland cement; therefore, any mortar used to repair Rebekah's brick walls should not contain **any** Portland cement. *It is important that any replacement mortars used to repair be custom manufactured according to the results of the mortar analysis, and be applied correctly* (see Appendix H for a technical brief on repointing historic masonry).

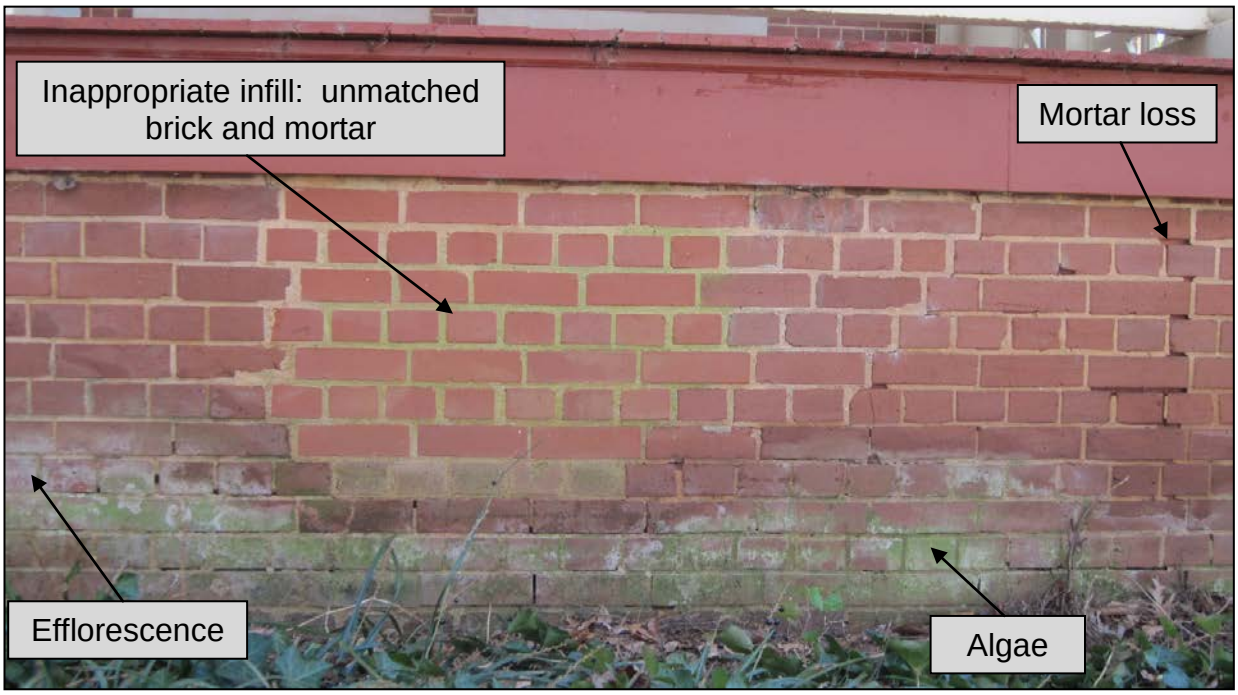
[63] Mack and Speweik, 3.
[64] Arbogast Mortar Analysis homepage, © David Arbogast, http://www.mortaranalysis.biz/.
[65] David Arbogast, Mortar Analysis Sample Collection, © David Arbogast, http://www.mortaranalysis.biz/sampling.html.

Inappropriate Repairs

Almost all of the repairs made to Rebekah's brick walls have been inappropriate at best, with bricks that do not match the historic bricks, and mortar that does not match the original mortar. Below is a close-up photo of Rebekah's historic brick and mortar. Both are in excellent condition with no problems, despite the fact that they are over 100 years old. This example should be the standard for any repairs made. Unfortunately, virtually none of the repairs done to date replicate the original masonry.

In addition to being unsightly, these repairs are, in many cases, causing more harm than good. As discussed in the section above, the admixture of Portland cement into the replacement mortars is a major cause of the problems, causing mortar to fail, bricks to spall, and bricks to loosen and fall out. The worst repairs are on the three facades of the original kitchen (the Annex), the east foundation, and the foundation of the porch. On the next page, the first photo demonstrates a number of the issues confronting the front porch foundation, including an inappropriate repair. Compare that repair to the photo below.

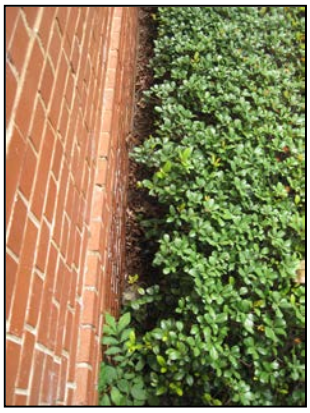
A close-up view of Rebekah's historic brick and mortar. Note the colors and textures; the crisp, straight lines; the raked joint profile —indicators of the work of master craftspersons. Brick repairs must match the historic brick in size, color, texture, shape, and composition. Mortar repairs must match the historic mortar in composition, texture, color, joint size, and joint profile.



North façade of the porch foundation displays a variety of brick problems and types of decay.

The south Annex has suffered from a number of inappropriate repairs to the brick walls. Unfortunately, the repairs have not only caused serious damage to the surrounding brick, but have themselves failed. The problem has been compounded when caulk was applied to "repair the repairs." To top it off, in some areas, the caulk is peeling away, and bricks have begun to fall out of the wall. Loss of brick in a load-bearing wall is a potentially dangerous condition that should be taken seriously. Sending someone out with a caulk gun to fix a historic load-bearing brick wall demonstrates an astonishing and troubling lack of knowledge about the correct way to maintain a historic brick structure and the importance of doing the job properly.

Before the repairs to the brick wall can be discussed, however, it is first necessary to address the conditions that have caused the mortar to fail in the first place. The Annex has a number of factors contributing to the high amount of moisture surrounding the building.



Dense shrubbery crowds the Annex's south foundation.

- This south ell has no gutters, downspouts, or splashblocks to direct stormwater away from the building's foundation. Rain flows over the eaves and drops down onto the ground or onto the brick edges of the window wells (see the Drainage section below).

- The building has very dense shrubbery at the perimeter of its south foundation (see photo at right). The closely-packed bushes are difficult to walk through, and are very close to the building's surface. The plants create shaded areas that retain moisture.

- The combination of rain water pooling near the foundation (because there are no gutters) AND the dense shrubs growing at the foundation absolutely guarantees that these areas stay moist much of the time. This one-two punch is delivering a knock-out blow to the historic brick on the south Annex.

- The window wells on the east and west sides of the ell, extend well below grade, as these windows are tall, 1/1, double-hung sash. Water collects in these window wells and remains there until it evaporates. The basement windows on the south facade are six-light, fixed sash, and the wells are not as deep, only a little below grade. These wells do not collect as much water, but do collect trash.

- The Annex has undergone more exterior changes than any other section of Rebekah. On the south façade, two doors and two sets of stairs were removed; a window was inserted; a wall was substantially rebuilt; and a new door and stairs were installed. All of these alterations were made in the mid-twentieth century or later. All of the mortar, and most of the bricks used in the renovations were modern: both materials are harder than the historic mortar and bricks, and the modern mortar contains Portland cement.

The result of these unmitigated issues (moist environment and improper repairs) is the ruinous condition of the wall, which continues to crumble. Historic mortar has been lost. Some historic bricks are so deteriorated they must be replaced (see photo below and photos on the following page), and others have been displaced or soon will be. It is imperative first that the moist microclimate be eliminated. When that has been achieved, then correct repairs must be made, using custom mortar and bricks to make the repairs.

South foundation of the kitchen/Annex. Note some spalled bricks, and the surfaces of other bricks literally peeling away — the results of a moist microclimate and bad repairs using the wrong mortar.

Original mortar failed due to continuously moist environment caused by lack of gutters and dense shrubbery. Incorrect repairs made with cement-based mortar. Use of caulk to "repair the repairs."

(1) Cement-based mortar used to repair historic mortar—the first mistake.

(2) The cement-based mortar is harder than the historic bricks, which begin to separate from the new mortar. Brick faces spall (delaminate); these bricks must now be replaced.

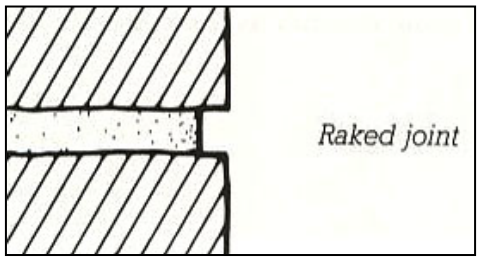
(3) Caulk (!) is used to fill in between the crumbling bricks and bad repair mortar. It is not holding either. The lower brick is about to fall.

Repointing

Repointing[66] is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar. Properly done, repointing restores the visual and physical integrity of the brick wall. Improperly done, repointing not only detracts from the appearance of the building, but may also cause physical damage to the bricks themselves. It is an expensive and time-consuming process due to the extent of handwork and special materials required, but it is cost-effective as it will last 30 or more years when properly executed. Repointing is also more costly when knowledgeable and experienced masons perform or oversee the work.[67]

> A good repointing job is meant to last, at least 30 years, and preferably 50-100 years. Shortcuts and poor craftsmanship result not only in diminishing the historic character of a building, but also in a job that looks bad, and will require future repointing sooner than if the work had been done correctly. Successful repointing depends on the masons themselves. Experienced masons understand the special requirements for work on historic buildings and the added time and expense they require. The mortar joint in a historic masonry building has often been called a wall's 'first line of defense.' Good repointing practices guarantee the long life of the mortar joint, the wall, and the historic structure.[68]

Key to the proper repointing of Rebekah will be the use of the correct mortar. Much has already been said about the disastrous results of using a modern, Portland cement-based mortar on 1905 brick walls. Laboratory analysis of the historic mortars was conducted (see the findings in Appendices D and E). It is imperative that custom bedding and pointing mortars be manufactured using the results of the analysis and the sand and fines samples enclosed. The custom mortars should then be used *exclusively* to repair Rebekah, and to undo the incorrect repairs already done. The importance of employing experienced masons cannot be overstressed.



When repointing the building, it is important to understand the way the mortar joints were finished. Rebekah's mortar edges were not simply scraped off level with the brick edges. Instead, they have a tooled finish, called a joint profile. The care taken to finish the mortar joints demonstrates the high level of craftsmanship that characterizes the building. The joint profile used on Rebekah is a raked joint (see diagram[69] at right and compare with close-up of Rebekah's historic joint profile on page 42). A raked joint is made by removing mortar to a given depth with a square-edge tool before hardening.[70] For the masons working on Rebekah, this was a four-step process.

1. The brick was laid with bedding mortar.

2. After the bedding mortar had set up, mortar to a depth of about 1½" inches from the edge of the brick was removed.

3. Colored pointing mortar (with higher lime content) was applied.

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[66] Sometimes called simply "pointing," or, in the U.S. "tuck pointing." See footnote 57.
[67] Mack and Speweik, 1, 7.
[68] Ibid, 60. A copy of this technical preservation brief is in Appendix H, and should be used to guide the repointing of the brick on Rebekah and the other historic buildings on the Agnes Scott College campus.
[69] Ching, 163.
[70] Ibid.

4. After the pointing mortar had set up, the mortar joint was given its distinctive profile; in this case, a raked joint.

To achieve a comparable appearance to the existing brick wall, it is important that the appropriate mortars be used, and the mortar joints precisely finished with the correct joint profile. Not only must the profile be of the right type, but the width of the mortar joints (both horizontal and vertical) must also match. The level of detail required in repointing further underscores the necessity of hiring brick masons who have worked on historic buildings.

Not only does the mortar not match in color, composition, or texture, but the mortar joints are sloppy, of irregular sizes, and are simply finished flush with the brick without any attempt at a matching joint profile. The bricks also do not match the originals.

West façade. Note top left open hole through to the interior.

Openings in the Brick Walls

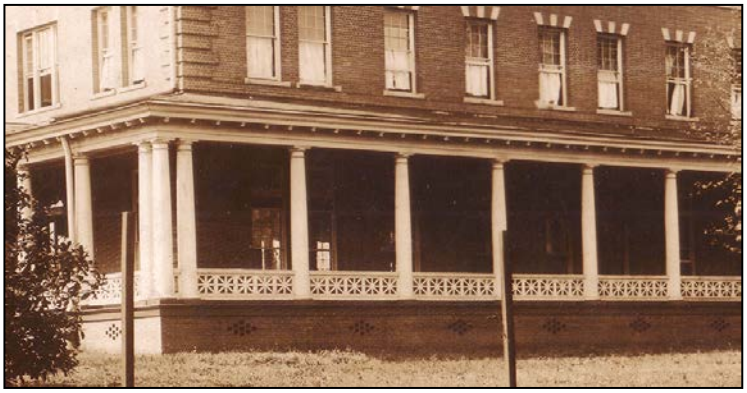
There are a number of places in Rebekah's brick facades where holes or openings have been made for various reasons. In the west façade near the air-cooled chiller is a hole core-drilled through the entire wall thickness that needs to be repaired (see photo at right). In the east foundation of the Annex is another opening that should be covered (see photo below). Venting for the clothes dryers on west façade (one is visible in photo at right) should to be done in a more sensitive manner; for example, the vent could be painted to match the brick.

Opening in the east foundation of the Annex.

Ventilation Issues

Historically the foundation walls of the porch were vented at each bay with a nine-hole diamond design in the brickwork (see top left photo on next page). As part of the 1985-86 renovation, the vent areas were filled in. Alternating bays were infilled with new bricks and mortar. While the English bond pattern was maintained during the infill and repairs, the brick color was not an exact match, nor did the

mortar match in color, composition, texture, or joint profile (see top right photo).



Left: section from pre-1926 photo of Rebekah. Note nine-hole diamond-shaped vents in foundation between each column.
Right: north porch foundation where a nine-hole diamond shaped vent was replaced with bricks and mortar that do not match the original.

In place of the original vents, new rectangular metal mesh vents were installed in every other bay (see photo below right). The new vents are not providing adequate ventilation to the crawlspace under the porch. It is constantly damp, which is causing mildew and even rot on some of the wood structural members. It is recommended that vents be installed in every bay of the porch foundation, and a vapor barrier be placed on the ground in the porch crawlspace.

It is not known why the original vents were filled in. Inman Hall, built five years after Rebekah and designed by the same architects, has the identical nine-hole diamond design vents in its porch foundation (see photo below left). These are still intact. Why were Rebekah's removed?

Metal mesh vents now installed in Rebekah's porch foundation between every other column.

The nine-hole diamond-shaped vents were left intact on Inman Hall, built in 1911. Why were Rebekah's removed?

Cleaning Historic Masonry

All of Rebekah's brick and limestone surfaces need to be cleaned (see Appendix G for a technical brief on cleaning historic masonry). Do not overlook the underside of the window lintels (see photo below). Water washing with low-pressure is the first recommended cleaning method for masonry. Start with a very low pressure of 100 psi,[71] and increasing as needed, but generally no higher than 300-400 psi. Scrubbing with natural bristle or synthetic bristle brushes may be needed; however, metal bristle brushes should never be used as they can abrade the brick and mortar.

In extremely dirty areas, it may be necessary to add a non-ionic detergent to the water wash. A non-ionic detergent is gentler than household detergents, and rinses very cleanly. Scrubbing with the soft bristle brushes may be necessary. A final low-pressure water rinse completes the process.

The undersides of the window lintels—both brick and limestone—need to be cleaned.

The most important thing to remember when washing Rebekah is to use low pressure. The building cleaning industry considers 5,000 psi to 15,000 psi "high" pressure, and for non-industrial applications, commonly uses medium pressures between 1,000 psi and 2,500 psi. Even these so-called "moderate" pressures are too high to use on a historic brick building. Rebekah's brick was manufactured in 1905, and at that time, kilns could not reach the high temperatures achievable today. This means Rebekah's brick is softer than modern brick, and it is essential that anyone cleaning the building recognize that fact. Abrasive cleaning methods, including a "moderate" pressure for washing, will remove the brick face, leaving the even softer interior exposed. When that happens, the brick has to be replaced.

This investigator learned from various staff that many of ASC's building exteriors are cleaned by pressure-washing at very high psi. Investigators also personally observed damage to the stonework at the entrance to McClain Library caused by pressure-washing at a psi too high for the stones. It is strongly recommended that the College use only an operator experienced with historic building materials to perform any pressure-washing, and that all pressure-washing be done at a low pressure. If water alone does not clean the surface, then a non-ionic detergent should be utilized. Increasing the water pressure may clean the masonry, but can also irreparably damage it.

Pressure washing the balcony during the 1985-86 renovation of Rebekah.

[71] psi = pounds per square inch.

Brick Recommendations

1. Clean all of the brick surfaces. See discussion above for the various conditions found on Rebekah's brick. Consideration should be given to leaving the lichens growing on brick shelves above the balcony. No water repellant should be applied, as this will accelerate deterioration of the historic brick. See Appendix G for a technical brief on cleaning and water-repellant treatments for historic masonry buildings.

2. Under no circumstances should moderate to high pressure-washing be used. Recommended pressure washing is 100 psi at a range of 3 to 12 inches. Any psi beyond those limits should be carefully tested first to ensure no damage occurs to the bricks or mortar. Any pressure-washing should be closely supervised. See Appendix G for a technical brief on cleaning and water-repellant treatments for historic masonry buildings.

3. Repoint mortar in areas of deterioration using custom mortar formulated to match the historic mortar. See Appendices D and E for the mortar analysis and Appendix H for a technical brief on repointing mortar joints in historic masonry buildings.

4. Replace deteriorated bricks with bricks custom manufactured to match the historic bricks in size, color, texture, shape, and composition.

5. Replace all sealants around any penetrations through the brick.

6. Cover any existing openings in the brick that go through to the interior.

7. Install dryer vents on the west facade that blend better with the brick façade or paint existing vents to match the brick wall.

8. Establish positive grade away from the perimeter of the building to ensure that stormwater drains away from the brick foundation and footers.

9. Install additional metal mesh vents in the porch foundation.

Vegetation Recommendations

1. Remove any plant material that is in contact with any of Rebekah's surfaces.

2. Trim back any plant material at least two feet from any of Rebekah's surfaces.

3. All trees overhanging or densely shading the building should be cut back and thinned to allow sunlight and breezes to reach the building, creating a drier atmosphere.

4. Limb up the two large magnolias flanking the front entrance to a height of six feet or more.

WOOD ROOF ELEMENTS

Cupolas

Rebekah Scott Hall has two cupolas: one centered over the north wing; the other at the south end of the south ell. A cupola is defined as a small circular or polygonal structure projecting from the ridge of a roof. Cupolas, while decorative in appearance, are often of specific types installed for distinct purposes. A belfry is a cupola with a bell; a belvedere is a large cupola with windows for observation; and a lantern is a cupola usually with louvered windows to let in light and air. Rebekah's two cupolas are of the lantern type, and admit light to the attic.

They are also an essential component of the passive ventilation system, which includes the soffit vents spaced between every third eave bracket at the perimeter of the roof. Lowering the attic temperature by vents and cupolas was one of the many ways that builders cooled a building in the pre-air conditioning era, in addition to installing such architectural features as tall ceilings, a wraparound porch, deep overhangs, and operable windows. Rebekah contains all these energy-efficient features. It is recommended that the passive ventilation system be restored by removing the unused ductwork currently clogging the interior of the north cupola, and by ensuring that the soffit vents are not covered with insulation in the attic. It is possible that LEED credits can be earned for restoration of the passive ventilation system.[72]

The south cupola is an octagonal wood structure with fiberglass shingle roofing (see photo on page 25). The roof is supported by 24 large wood brackets, with one at each hip of the roof and two additional brackets between each hip. At the eaves is a molded cornice. The eight sides of the cupola are seven-slat wood louvers separated by heavy posts. Beneath the louver sections is a wood wall supported by a molded cornice. The area beneath the cornice is a wood deck. The cupola's original roofing was slate, but most of the slate tiles were removed during the 1975 roof replacement, and covered with felt and shingles. Metal flashing was installed at the cupola's corners.

West eave of south cupola with missing shingles and cornice, deteriorating brackets, paint loss.

The south cupola's roof is in ruinous condition. The roofing shingles show the same wear and loss of granules as the main roof, and need to be replaced. At the southwest side, a section of the shingles is missing, and the bracket ends and exposed decking have lost paint and are rotting. Worse is the loss of a section of the molded cornice at the eave (see photo at left). The paint has completely failed, and exposed elements are beginning to rot.

Rots are wood-decaying fungi found on wood, not on masonry. They come in a

[72] Check with Jenkins•Peer, the project architects, to determine if LEED credits can be earned for the restoration of the natural ventilation system elements.

range of colors; generally, the darker the rot, the more damage is occurring to the wood. White and brown rots were observed on Rebekah. The presence of rot indicates a damp environment, and often occurs on wood when paint has failed, as the paint protects the wood from moisture. The rotted sections need to be cut out, and replacement parts manufactured to match the existing cornice in wood type, size, and molding profile. All wood elements need to be repaired or replaced, sanded, primed, and re-painted. Missing shingles must be replaced. See sections below on wood repair/replacement and paint recommendations.

Brackets supporting the south cupola roof show alligatored paint.

The south cupola's most obvious problem is that the paint on the wood surfaces has failed. Paint has, of course, a decorative purpose, but its most important function is to provide protection. Paint is to wood as sunscreen is to human skin; it protects against damage caused by the ultraviolet rays of the sun. A paint film must be maintained on the wood surface. If it is not, then the wood itself will deteriorate and ultimately must be repaired or replaced. The cost of proper paint maintenance, while not small, is far less than any wood repairs. It is in the College's best financial interest to ensure that Rebekah is regularly painted (every 10 years, if done correctly).

Much of the paint on the south cupola is alligatored (see photo above right), a failure of the paint film where deep fissures form a relief pattern resembling the scales on a reptile. On some surfaces there is checking, which is less severe than alligatoring, but does represent a failure of the paint and the consequent loss of protection to the wood beneath. To solve both problems, the wood surface must be sanded, primed, and re-painted. Details on repair and painting of historic wood elements are discussed below. Also, a technical brief on exterior paint problems on historic woodwork is in Appendix I. Paint samples were taken from the south cupola and examined. The first paint layer was white. The cupola was then painted silver, and then back to white, as it is now. It is recommended that the south cupola be repainted the original yellowish white (see Appendices B and C for paint analysis reports and original color documentation).

North cupola as viewed from the south.

There are a large number of wasps' nests under the cupola eaves which should be removed prior to any repairs or painting.

The investigators were unable to gain access to the north cupola (see photo at right) either from the exterior or the interior, which is obscured with ductwork which is visible

through the windows. Access to the north cupola will be necessary to properly investigate its current conditions, and to make appropriate recommendations for much-needed repairs and maintenance.

The rectangular wood structure is supported by timber framing in the attic. The cupola features hipped skirt roofs, molded cornices, scrolled brackets, and square Doric pilasters. There is a circular window (originally open, now covered with screening) in each of the four sides. Beneath the windows are four-slat wood louvers. The paint on the wood elements has peeled completely off in places and is extremely deteriorated. On the north and east sides are large holes in the cornices (see photo at right). The rotted sections need to be cut out, and replacement parts manufactured to match the existing cornice in wood type, size, and molding profile.

North cupola as viewed from the north, showing rotted and missing cornice sections, broken vertical spike, failed paint, and a rusted metal dome.

The cupola's roof is a metal-covered dome. The finial is round with a small projection at the top, but originally the finial had a vertical spike (see historic photos below). It appears that the spike was broken off at some time (see photo top right). It is strongly recommended that the vertical spike on top of the round finial be repaired or replaced. The metal on the dome and both skirt roofs is rusted and must be replaced, once the type of roofing metal is ascertained.

North cupola view from northwest. From 1939 Silhouette, p. 67.

North cupola with spike on dome; dark colored trim paint. From 1947 Silhouette, p. 186.

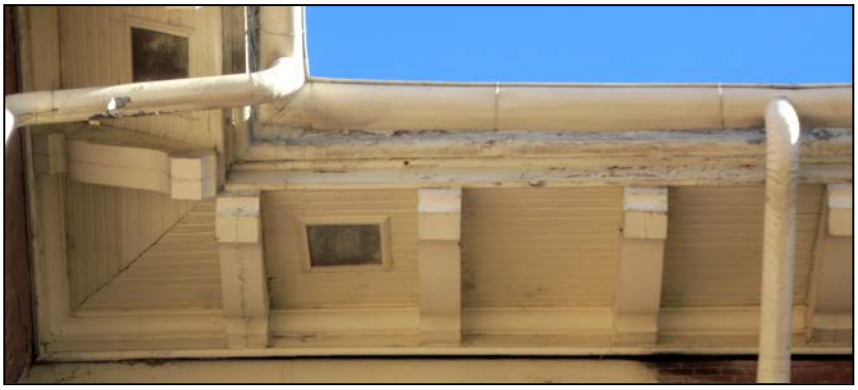
Because the north cupola was not accessed, it was not possible to gather paint samples to determine its original colors. The historic photo (at right) shows that the north cupola was not always entirely painted its current light color. The earlier dark colors on the cornices and trim work served to highlight the cupola and make it stand out against the sky (see especially bottom right photo on preceding page). It is recommended that paint samples be collected from various sections of the north cupola to determine the historic paint colors, and replicate them.

Dark trim accentuates the north cupola. From 1945 Silhouette, frontispiece.

Cornices and Brackets

Rebekah has wide, overhanging boxed cornices. The cornice is molded in the *cyma reversa* ogee form, but the gutters obscure it, except on the south annex and the porch, which have no gutters. There is a short fascia board beneath the molding, and the angled soffit is beadboard pierced at intervals by mesh-covered rectangular vents. The cornice is supported by wide, decorative eave brackets.

Like many of the wood elements on Rebekah's exterior, the cornice paint is in ruinous condition in places (see photo below). With the protective paint coating gone, sections of the cornice have rotted, and will need to be replaced. The areas with peeling, flaking, checking, or alligatored paint film must have all the deteriorated paint scraped, the underlying wood repaired or replaced as necessary, then sanded, primed, and re-painted.



Wood details at the west corner where the main building (left) adjoins the south ell (right). Note the deteriorated paint and damage to cornice and fascia.

The eave brackets and soffits, being protected by the overhanging eaves, are in generally better condition. The paint is not as deteriorated, and the wood elements appear to be sound. The paint should be cleaned by gentle washing with a 1:4 bleach to water solution (see section on cleaning recommendations below). It can then be evaluated whether it needs to be sanded, or if it can be re-painted directly.

Molded cornice, fascia, and soffit supported by eave brackets. These elements on the porch are in better condition than those on the main building, but they need to be cleaned and then evaluated to determine if repainting is necessary.

The projecting front entrance to Rebekah is embellished at the cornice (see photo below).

View where the west end of the front projection meets the recessed section of the main building. Note the two rows of eave brackets on the front project (at left), both of which differ from the regular eave brackets (at right) on the rest of the building. The cornices of both sections have extremely deteriorated paint and probably damage to the underlying wood. All of the wood elements need to be cleaned; most will need to be repainted.

Like the rest of the building, the top section of the cornice is supported by individual carved brackets. These brackets, however, are supported by a rectangular wood boxed shelf that itself is supported by another row of brackets affixed to the brick façade. These brackets,

some of which are paired, are more elaborately carved than the upper brackets. These additional wood elements serve to highlight the importance of the entrance to the building.

All of the front entrance brackets have peeling paint, and some areas have rotted wood. Like the other exposed wood elements on Rebekah, the paint should be hand-scraped, the wood should be repaired and sanded, primed, and re-painted.

Lead-Based Paint

Any discussion of paint at Rebekah Scott Hall must include lead-based paint (LBP). In April 2008, the U.S. Environmental Protection Agency instituted the Lead Renovation, Repair and Painting (RRP) program, which required the use of lead-safe work practices in pre-1978 homes, but included an opt-out provision if there were no children under the age of six living in the building. However, on July 6, 2010, the opt-out provision was removed, and all contractors performing renovation, repair, or painting work in homes built before 1978 must now follow lead-safe work practice requirements. The opt-out was eliminated because improper renovations in older buildings can create lead hazards that can be harmful for any residents or visitors to such a home, regardless of their age.[73]

Rebekah was constructed in 1905-06, and its original exterior primer and paint were lead-based (see paint analysis in Appendix C). The paint analysis found a total of 22 layers of paint on the porch balustrade, and while later paint was not analyzed for this study, it is certain that many of those 20 paint layers also contain lead.

On May 28, 1998, the Agnes Scott College Facilities Management Department produced reports on asbestos and lead-based paint in the ASC buildings, including a report on Rebekah. On September 21, 2011, NOVA Engineering & Environmental released its survey of ASC buildings for the presence of asbestos and lead-based paint. Both reports found LBP at Rebekah, both inside and out. The NOVA report found lead-based paint on all the exterior wood surfaces which were tested, except the red paint on the porch floor.[74] The report stated, "We believe it prudent to consider all painted wood, metal and cement surfaces as lead containing paint."[75] Therefore, any painting, or any repair or renovation work on Rebekah, interior or exterior, that might impact a painted surface, must follow lead-safe work practices.[76]

Wood Repair and Replacement Recommendations

Many of the rotted and severely damaged wood elements will have to be repaired or replaced. There are a number of options available to the College involving when to repair rather than replace entirely, and the variety of materials that can be utilized in either. See Appendix K for a discussion on replacement materials.

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[73] United States Environmental Protection Agency, "EPA Rule Increases Protection from Lead-Paint Poisoning," July 6, 2010. USEPA website, last updated 9/6/2014.
[74] NOVA Engineering & Environmental, "Report of Limited Asbestos & Limited Lead Based Paint Survey, Agnes Scott College: Campbell, Main, and Rebekah Halls," September 21, 2011, Appendix C, LBP XRF TOTALS: Rebekah, p. 1.
[75] Ibid., 10.
[76] See the U.S. Environmental Protection Agency, "Lead," USEPA website, last updated August 6, 2014. http://www2.epa.gov/lead.

1. Due to the presence of lead-based paint, use only certified renovators to ensure they follow lead-safe work practices while repairing or replacing wood elements.

2. Replace the wood completely. This is the more expensive option, no matter what materials are utilized.

    a. According to the Secretary of the Interior's Standards for Rehabilitation, item #6,[77] "*Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials.*" In short, the preference is for wood to be repaired where possible. If not, then any severely deteriorated wood elements should be replaced in kind, meaning replace wood with wood.

    b. Other types of replacement materials (non-wood products) are available. These are usually composite materials, including plastic resins (such as PVC), cast polyester resin, or Trex. It should be noted that many of these materials are only to be used in <u>non-stress-bearing applications</u> and would not be appropriate for load-carrying elements. Use of these materials to replace original wood features is contrary to the Secretary's standards, and is generally not recommended.

        i. PVC (polyvinyl chloride) can be a replacement for wood in most non-stress-bearing applications. It is durable, will not absorb water, and is good for exterior use or in areas where moisture is a problem. It biggest disadvantage is that it is more expensive than wood. However, its lower maintenance costs may make it a viable option.

        ii. Cast polyester resin requires first making a mold from an original piece (for example, one of the historic wood brackets). The mold is then used to recreate polyester copies. This is a multi-step process requiring a number of ingredients, along with curing and baking, before the final paint application. Cast resin can only be used in non-stress-bearing applications.

        iii. Trex is made from 95% recycled materials, including reclaimed wood and sawdust as well as recycled plastic. The Trex Company is currently in litigation because the products have not lived up to the 25 year warranty. Use of Trex products on Rebekah Scott Hall is strongly discouraged.

3. Patch and repair the wood with replacement wood, epoxy, or fillers, usually a combination. This option is the least expensive, and meets the Secretary's standard for repair as the preferred option. An experienced carpenter can cut out the rotted wood sections and rebuild them. The repairs are made once the existing wood surface is completely dry and sealed. If done properly, it is virtually impossible to distinguish a repair from a full replacement.

[77] See Appendix F for complete listing.

If the decision is made to use real wood, it is best to make sure all surfaces of the wood are thoroughly primed and sealed. A common mistake is to prime only the exposed areas of any replacement wood. All sides of a wood element must be sealed to avoid future moisture penetration.

Recommendations for Cleaning Wood

Appendix I is a technical bulletin describing exterior paint problems on historic wood. It contains instructions for cleaning different types of accretions off wood architectural elements. The following is a summary of the conditions found on Rebekah, and recommended remedies according to the bulletin, which should be consulted for treatment details. As always, adhere to the first principle of cleaning historic structures: use the gentlest method possible.

- Due to the presence of lead-based paint, use only certified renovators to ensure they follow lead-safe work practices while cleaning wood elements.

- NEVER use abrasive cleaning treatments such as sandblasting, pressure washing, rotary sanders, or rotary wire strippers. Most types of wood used for buildings are soft, fibrous and porous, and are particularly susceptible to damage by abrasive cleaning, causing a raised and frayed grain. Once this has occurred, it is almost impossible to achieve a smooth surface again except by extensive hand sanding, which is expensive.[78]

- Dirt generally does not constitute a paint problem, unless it is painted over rather than removed prior to repainting. This exact situation occurred on Rebekah's porch balustrade—a dirt layer that was painted over—which was revealed during the paint analysis. If not removed, surface deposits can prevent the proper adhesion of new paint and cause it to peel. Remove dirt using a stream of water from a garden hose. Stubborn grime can be scrubbed off using ½ cup of household detergent in a gallon of water with a medium soft bristle brush, which should then be rinsed clean. Allow the surface to dry, and then evaluate whether repainting is needed.[79]

- Mildew can thrive in any area where dampness and lack of sunshine are problems. A first step to preventing mildew is to change the environment where it is growing. This may involve pruning back trees to allow sunlight to strike the building, installing a gutter system, or improving drainage.[80] A recommended treatment of mildew is on page 37. Once mildew is removed, allow the surface to dry, and then evaluate whether repainting is needed.

- Chalking is a condition found in many of Rebekah's wood elements. This powdering of the paint surface is caused by the gradual disintegration of the resin in the paint film. To remove chalk, clean it with solution of ½ cup household detergent to one gallon water, using a medium soft bristle brush. After scrubbing, the surface should be rinsed with a direct stream of water from the nozzle of a garden hose, allowed to dry thoroughly, and repainted, using a non-chalking paint.[81]

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[78] K. D. Weeks and David W. Look, "Exterior Paint Problems on Historic Woodwork," Preservation Brief #10 (Washington, DC: Technical Preservation Services of the National Park Service, September 1982), 2-3.
[79] Ibid., 3.
[80] Ibid., 4.
[81] Weeks and Look, 4.

Paint Recommendations

One of the main causes of wood deterioration is moisture penetration, and a primary purpose for painting Rebekah's wood components is to exclude water and slow the deterioration of exterior wood features. Paint also, of course, improves appearance and can be used to accent architectural details. Exterior paint must be able to withstand the yearly extremes of both temperature and humidity. It is only a temporary physical shield, and must be re-applied every 10 years. Its importance should not be minimized.[82] The poor to ruinous condition of much of Rebekah's exterior paint demonstrates that the optimal maintenance timetable has been overlooked. The following recommendations will assist the College in remedying the areas of failed paint and maintaining properly the paint that is in good condition. See Appendix I for detailed instructions.

- Due to the presence of lead-based paint, use only certified painters to ensure they follow lead-safe work practices while cleaning, repairing scraping, stripping, sanding, priming, and painting wood elements. Use only approved lead-free primers and paints.

- It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white, (Munsell color notation 5 Y 9/1). See Appendix C for the paint analysis results and a color sample.

- Routine treatment of a painted wood surface prior to re-painting includes cleaning, light scraping, and hand sanding. In general, however, removing paint from historic buildings should be avoided unless absolutely essential. If removal is warranted, remove paint to the next sound layer, then repaint. If the paint surface displays deep cracks, or if it is blistered and peeling to the extent that bare wood is visible, then the old paint should be removed and the wood sanded before repainting.

- If a paint problem has been identified that warrants either limited or total paint removal, the gentlest method possible should be chosen from the many available methods. Appropriate methods include scraping or paint removal with the electric heat plate or electric heat gun, depending on the particular area involved. Chemical strippers are NOT recommended on Rebekah's exterior wood elements due to the proximity of historic brick and limestone, which would be damaged. Chemicals are also harmful to surrounding vegetation.[83]

- Paint removal methods that should NEVER be used on historic wood include sandblasting, pressure washing, the use of orbital or belt sanders or rotary drill attachments. Blow torching is never appropriate. Use of such harsh methods of paint removal will irreparably damage the wood underneath, necessitating reconstruction and replacement of the wood elements—a very costly proposition.[84]

- Paint analysis has been done on representative samples of Rebekah's wood features (see Appendices B and C). A major exception is the north cupola which was not accessed. It is recommended that the historic paint colors be restored on all wood

[82] Weeks and Look, 1.
[83] Ibid., 7.
[84] Ibid., 7-9.

architectural elements. Further, paint samples should be collected from the north cupola and analyzed to determine original colors, which can then be restored.

- Most of Rebekah's painted wood surfaces are crazed. Crazing is a series of fine, jagged breaks in the top layer of paint. Treatment of crazing is to sand the surface, either by hand or mechanically, then repaint.[85] Proper treatment of this minimal paint failure will prevent more serious conditions.

- Many of Rebekah's painted wood surfaces have more serious paint failures. Cracking and alligatoring are advanced stages of crazing, with deep cracks and flaking paint. If the cracking and/or alligatoring are only in the top layers of paint, then they can be scraped, sanded to the next sound layer, and then repainted. However, if bare wood is exposed, the paint will need to be totally removed. Bare wood should be primed with 48 hours, then repainted.[86]

[85] Ibid., 5.
[86] Ibid., 6-7.

PORCH

Rebekah's porch is one of its main character-defining architectural features. The three-sided wrap-around wood-framed porch is a verandah. Its one-story, hipped, asphalt-fiberglass shingle roof is supported by Tuscan columns, and it retains the original wood star-pattern balustrade. The 13'9"-high ceiling has the original 3" beadboard, and a fire suppression sprinkler system has been installed in the ceiling since 1939, which has been upgraded over the years. Electric lighting on the porch was a cutting-edge feature in 1905 (see photo at right).

Rebekah at night. From 1912 Silhouette, p. 41.

Flooring

The historic flooring was tongue-and-groove laid north-south. The wood flooring and its underlying structural system were slated to be replaced in the 1985-86 renovation according to architectural drawings, but it apparently was not done. The present flooring is part 5" tongue-and-groove (perhaps original) interspersed with sections of 5" V-joint (see photos below). It is strongly recommended that any flooring replacements be 5" tongue-and-groove.

At left: Replacement, 5" wide V-joint flooring.
Below: Historic (possibly original) 5" wide tongue-and-groove flooring.

In general the flooring is in stable condition, although its paint needs to be maintained uniformly. Some sections are very damaged, especially at the exterior edges (see photo at right and photos on next page). These deteriorated floor boards will need to be replaced.

Deteriorated floor board ends at the step from the quad to the south porch—a high traffic area.

The major cause of deterioration of the porch flooring is its high moisture environment, the result of the absence of gutters for the porch roof (see section on Drainage below), and the presence of large trees overshadowing the front facade (see page 39 above). Installation of a gutter system and trimming back the trees is strongly recommended. Proper maintenance of the flooring, including regular painting, will extend the life of the porch. If the gutters are installed and the paint properly maintained, it will not be necessary to cap the board ends.

Northwest corner of the front porch has missing flooring edges, and missing trim sections from beneath the flooring.

Trim piece under the flooring above the front steps is displaced. Fascia board above the front step has rotted and should be replaced.

Animals have been gnawing at the edges of the floor boards on the porch's west end. These areas can be repaired rather than replaced as they are in an obscure area with no foot traffic.

Balustrade

The balustrade is the original star-pattern with top and bottom molded rails (see photos on next page). It is in fair condition, although sections, especially on the north side which is in continuous shade, have deteriorated. Bondo® wood filler has been used to make some repairs; the repaired elements need to be re-painted (see photo at right). The balustrade has many layers of paint, which ideally should be removed completely. The deteriorated sections should be replaced in kind, and all the wood sanded, primed,

Bondo® repaired balustrade section needs to be re-painted.

and re-painted. See pages 56-60 for information on repair/replacement, cleaning, and painting historic woodwork, as well as lead-based paint.

Star pattern balustrades were not uncommon in the early twentieth century.

Rebekah Scott Hall, 1905-06, Decatur, GA, Morgan & Dillon, wood balustrade.

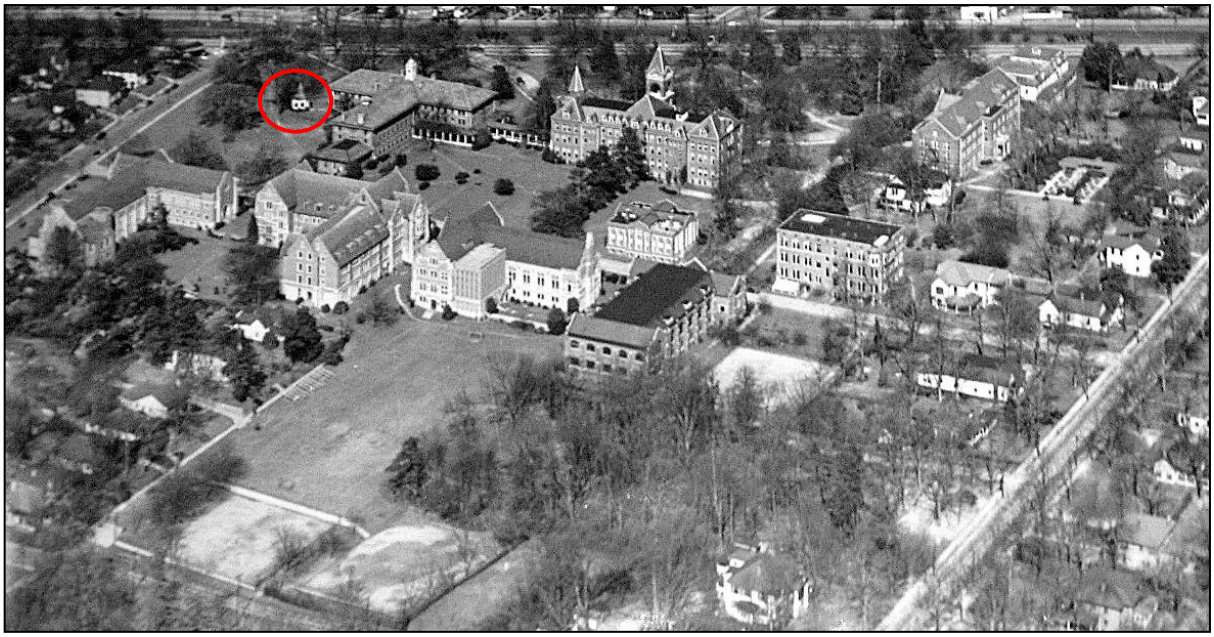
Horner Street Bridge, 1916-17, Johnstown, PA, Gustav A. Fink, reinforced concrete balustrade. Photo from the Historic American Engineering Record, Library of Congress.

The front balustrade originally was completely enclosed at its west end, unlike Inman Hall's balustrade, which has always had a side opening with stairs. A 1954 photograph, however, shows that at one time Rebekah's balustrade did have a west side opening to provide access to the Gazebo (the stairs are in shadow in the photograph). The Gazebo was the former house over the original campus well at the northwest corner of Main Hall. It was relocated to the west lawn of Rebekah in 1926 and enclosed with glass windows to provide a comfortable retreat for the "Day Students"[87] (commuter students who did not live on

Left: Rebekah Scott Hall balustrade with opening at west end (circled) to provide access to the Gazebo. Photo from 1954 Silhouette, p. 5. Right: enclosed west balustrade today.

[87] *Alumnae Quarterly*, November 1926, p. 6.

campus.) The Gazebo was refurbished and moved to the main quad, which was renovated and named the George and Irene Woodruff Quadrangle in 1987.[88]



1940-49 Campus aerial looking north/northwest. Note Gazebo just left of Rebekah (circled). Photo from ASC Archives.

Carpenter Bee Infestation

The underside of the bottom rail of the balustrade on the south side of the porch has been attacked by carpenter bees. There are multiple entrance holes to the tunnels, excavated into the unpainted section of the balustrade, where the bees have burrowed to build their nests and lay their eggs (photo below right). The piles of frass (sawdust) on the porch floor beneath the holes are a noticeable sign of infestation (photo below left). Carpenter bees are distinguished from bumble bees by several characteristics: they are generally larger, have shiny abdomens, and are less hairy. Bumble bees nest in the ground, while carpenter bees drill holes into wood surfaces. While male carpenter bees act aggressively towards people,

Left image shows frass on the porch floor beneath the area where carpenter bees have drilled holes. Right image shows one of the circular entrance holes on the underside of the bottom balustrade rail.

[88] Sayr & Cozzens, "Timeline"; *Silhouette*, 1989, p. 16.

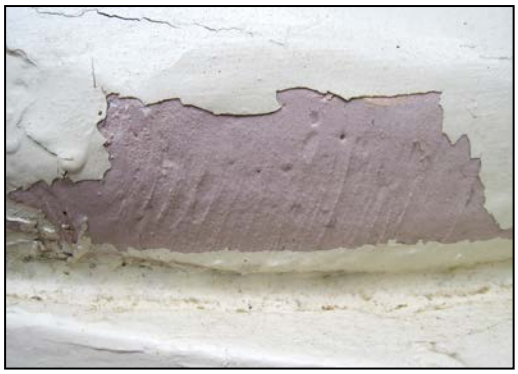
they cannot sting as they lack stingers. Females can sting, but seldom do unless attacked.[89] Many types of sprays are available to kill the bees. A spray should be applied at least once a month, but may need to be applied every two weeks during periods of high activity, which is spring in the Decatur area. A safe, animal- and human-friendly organic spray is Essentria IC-3™, which is very effective on a wide range of insects.

Treat carpenter bee nests with dust insecticide that can be sprayed into the drill holes, then cork the holes so the larvae will be killed. Drione® is a dust which works as a dessicant on insects. It is an organic pyrethrin, and is safe to mammals when properly applied. It will last a minimum of six months when placed in the voids. Carbaryl (Sevin™) is another dust insecticide that is effective, yet also toxic to humans, is outlawed in several countries, and not recommended for use on Rebekah.

Carpenter bees are especially attracted to unfinished or untreated wood and weathered finished wood, which is why they are attacking the underside of the balustrade. To prevent the carpenter bees from drilling holes, the wood surface must be treated. The underside of the balustrade could be primed and painted, which will provide protection against the bees.

Deteriorated column at porch's northwest corner.

Rebekah's carpenter bee nests occur only on the south porch, which is airy and gets plenty of sunlight—an attractive environment for the bees. There are no carpenter bee nests on the front (north) porch, which is continually damp and heavily shaded.



Close-up view of column by the front porch with Bondo® wood filler repair on the base. The paint has flaked off the repair, or was never applied.

Columns

The 12'-tall Tuscan[90] columns that support the porch roof are in good condition, with some exceptions. One column on the northwest side has cracked wood and peeling paint at its base (photo above right), while another by the front stairs has been repaired with Bondo® (photo below right). All the columns need to have their paint properly maintained, and those with damaged wood sections should be repaired immediately before expensive replacements are required. Most of the columns need to be scraped and repainted.

The present square column plinths[91] are not original. The first plinths were probably wood. They were somewhat larger than the current plinths, extending beyond the perimeter of the column bases. In early photos, they were painted what appears to be the same color as the

[89] Striking at carpenter bees with a tennis racket constitutes an attack.
[90] Tuscan columns are the Roman version of the original Greek Doric columns, with very plain capitals and bases. However, Tuscan columns are not fluted like Doric columns.
[91] A "plinth" is the usually square slab beneath the base of a column, pier, or pedestal. From Ching, p. 187.

porch flooring (see photo top right). It is not known when the current plinths were installed, but it was likely during the 1985-86 renovation. They are the same size as the column bases, are probably made of PVC or fiberglass, and have been painted to match the columns (see photo below left). These are ventilator plinths and have openings at the base on all four sides so water can drain through. Some of the plinths are cracked or broken, and most are clogged with leaves and other trash. Damaged plinths should be repaired or replaced, and their openings should be cleared of debris.

Current ventilator plinth painted to match the column. Note crack and broken section.

Undated but pre-1985 renovation. Note dark-colored plinth with no vent openings. From ASC Archives.

Ceiling

The beadboard ceiling has mildew because of the continuously moist environment (see photo at right). This damp microclimate is primarily a result of the large, overhanging trees which flank the front stairs and the southwest porch, creating the dark, humid conditions so detrimental to both the wood and brick building materials. An additional cause of the damp conditions is the fact that the porch has no gutter system. Rain water pools by the building foundation, and the dense shade ensures that it does not evaporate rapidly.

View of mildew on porch ceiling and entablature.

The ceiling should be cleaned, after which it should be evaluated to determine if it needs to be re-painted. See pages 58-60 for information on cleaning and painting historic woodwork.

Porch Crawlspace Access

The crawlspace access opening in the west porch foundation is covered with an unsecured board that falls open and can often be found lying on the ground. A functioning door that can be securely closed should be installed. The crawlspace access door on the east side that also serves as a vent, is a good model, except that it is screwed shut. The screws should be removed, and a secure latch installed. See photos of both crawlspace openings below.

Left: west crawlspace access with its plywood covering on the ground. Right: the east crawlspace access has an appropriate door, except it is screwed shut.

Porch and West Wing Crawlspaces

On Monday, May 19, 2014, Glenn Johnson, Project Manager of Jenkins•Peer Architects, went under the west side of the porch crawlspace. At the southwest corner of the crawlspace was a brick arch through the building's foundation opening. It leads into the crawlspace under the main building (see photo at right). Water was discovered in the northwest corner of the main building crawlspace. Other team members, including this investigator, went under the porch crawlspace and observed the situation.

View from the west end of the porch crawlspace looking southeast toward the foundation arch leading to the main building crawlspace.

The source of leak was not detected, but the sound of running water could be clearly heard, as if a faucet was left on with water flowing out at rapid rate. "Leak" is too unsubstantial a term for the rate of water currently discharging beneath the building. The water and the very shallow height of the crawlspace made access difficult.

Water was accumulating to a depth of 3"-5" in the main building crawlspace. A cinder block was half-submerged in the flow (see photo at right). Mold was accumulating on many surfaces in the crawlspace and pipes were rusting (see top photo on next page).

View of the water in the crawlspace of the main building. Cinder block is partially submerged.

The outflow was reported to the project team and the Facilities Management staff at a meeting on the afternoon of May 20th. At the June 30th presentation by the project team, it was reported by the College administration that the Facilities Management staff thought they had located the source of the leak. When this investigator was at Rebekah on July 30, 2014, entrance was made into the crawlspace. The water was still running at a high speed, continuing to flow

under the building. The mold, rust, rot, and dampness were worse than observed at the end of May.

The water was been running for over two months. How long it had been running before it was discovered on May 19th is not known. However, Bill Dean of Newcomb and Boyd, at the January 2014 presentation, reported that Rebekah used more water than any other dormitory on campus. Perhaps the present unrestrained outflow is a contributing factor.

The moisture from the main building's crawlspace has penetrated the porch crawlspace. All of the wood elements near the arched opening are seriously affected by white rot (see photos below), including the porch floor boards, the floor joists, and the wood porch piers. The water outflow will also cause erosion, settlement of the building, and masonry deterioration.

Mold and rust in the crawlspace—results of the extremely moist environment.

White rot is growing on most of the wood in the porch crawlspace—a result of the extremely moist environment caused by the months-long water outflow and lack of ventilation.

It is imperative for the structural integrity of the building and its below-floor systems that the source of this outflow be located and stopped. It will then be necessary to install fans to dry out the crawlspaces. Repair or replacement of pipes, ductwork, wood elements, or other systems located in the area may be necessary. It is strongly recommended that, once the crawlspace has been dried out, a plastic barrier be installed on the ground.

The lack of adequate foundation vents has exacerbated the situation. The 2011 conditions assessment of the building recommended installation of 25 crawlspace vents around the perimeter of the building.[92] It is recommended that additional crawlspace vents be installed in the building's foundation.

[92] Carter, et. al., Assessment and Study of Agnes Scott (Main) Hall, Rebekah Hall, and Campbell Hall, October 12, 2011, p. 34.

Porch Recommendations

Refer to the technical brief on preserving historic wood porches in Appendix K for detailed information on the care of the various wood elements of a porch and safety and building code compliance when alterations are undertaken.

- ***Immediately*** locate the source of the running water in the northwest corner of the main building's crawlspace and ***shut it off***. Install fans to dry out the affected crawlspaces. Clean the rot off the wood elements in the crawlspaces (see Appendix I). Dry out both crawlspaces. Make repairs as necessary to crawlspace elements. Install plastic vapor barriers on the ground in both crawlspaces.

- Recommendations on proper ventilation of the porch crawlspace are addressed on pages 47-48.

- Due to the presence of lead-based paint, use only certified renovators to ensure they follow lead-safe work practices while cleaning, repairing, scraping, stripping, sanding, priming, and painting wood elements. Use only approved lead-free primers and paints.

- Clean all the wood porch elements. See page 58 and Appendices I and K for cleaning recommendations.

- It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white, (Munsell color notation 5 Y 9/1). See Appendix C for the paint analysis results and a color sample.

- Paint the porch ceiling, if the post-cleaning inspection determines it is necessary.

- Missing trim pieces beneath floorboards must be replaced with matching trim, primed, and painted. Rotted fascia boards beneath the trim must be replaced, primed, and painted.

- Repair or replace cracked or broken floor boards and floor boards with missing edges using 5" tongue-and-groove to match the historic flooring. Replace any 5" V-joint flooring with 5" tongue-and-groove.

- Paint the porch flooring. See pages 59-60 and Appendices I and K for painting recommendations.

- Repair or replace deteriorated balustrade elements. See pages 56-58 and Appendix K for recommendations on wood repair or replacement in non-stress-bearing applications. Remove paint to the next sound layer, then repaint.

- Repair deteriorated column elements. Remove paint to the next sound layer, then repaint.

- Address the carpenter bee problem on the south wing of the porch.

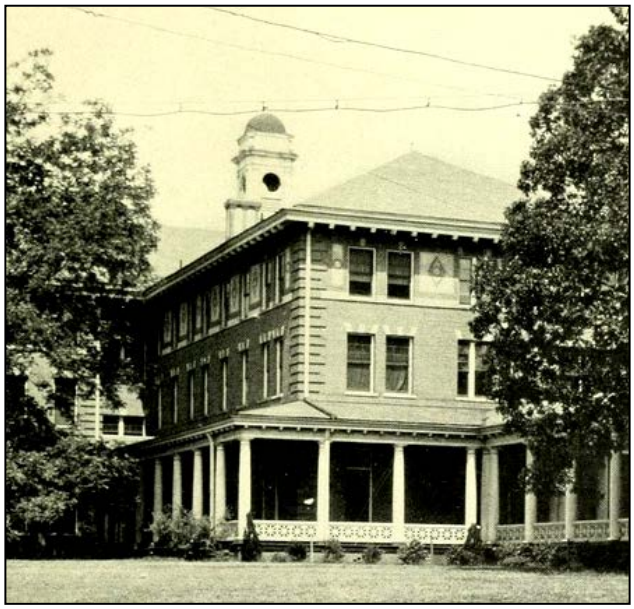
- Relieve the damp, dark microclimate of the front porch by trimming back trees and installing a properly functioning gutter system (see Drainage section below).

- Install functioning doors on the porch crawlspace access openings.

DRAINAGE

Rebekah originally was equipped with gutters and downspouts. It is not known if the gutters and downspouts presently on the building are original, though many are certainly in poor condition. Today, neither the porch nor the Annex has gutters, although they both did earlier (see both photos below right). Historically, above the porch, there were gutters with downspouts that ran across its roof and then down to the ground along columns (refer to photo below right). Today, the downspouts above the porch run through the porch roof and along the side of the building. The downspouts then extend through the crawlspace under the porch, and the downspout shoes exit through the porch foundation (see photo below left).

Note dark red downspout (top right) that leads from a gutter on the roof of the main building. Its shoe exits through the porch foundation (bottom left).



Downspouts lead from the eaves across the porch roof to the porch gutters; other downspouts run from the porch gutters along columns to the ground. From 1927 Silhouette, p. 16.

Graduation processional with Rebekah's kitchen / Annex in the background. Note that the building had gutters and downspouts at that time. From Silhouette, 1963, pp. 54-55.

It is impossible to determine from photographs the material of the original gutters and downspouts, other than that they were metal. The gutters were half-rounds, and the downspouts were round.

The current system has 7½" half-round metal hanging gutters with 5" round downspouts. New downspouts were scheduled to be installed in the 1985-86 renovation, but it is uncertain if all were replaced then. The gutters are secured with plain, twisted wire brackets that are fastened onto both the cornice and the roof eave. The brackets are painted where they wrap around the gutter. Both gutters and brackets are rusting on their upper sides, and the galvanized metal gutters are rusted in their trough floors. There are historic decorative metal brackets on some of the downspouts, although these are few in number (see photo at right), and those need to be repainted. Most are modern, plain, wide, flush-mounted metal strips. There are no downspout leaders; rather, the downspouts are fitted directly into the gutter troughs.

One of the few remaining historic downspout brackets, east façade above the porch.

The paint has deteriorated on many of the gutters and downspouts, and in places, the gutters have separated completely from the roof. Deteriorated gutters and downspouts should be replaced, and in a style and size that replicates the existing gutters and downspouts. Those gutters and downspouts in stable condition all need to be repainted.

The major problem with Rebekah's <u>existing</u> gutter system is the lack of splashblocks or downspout extenders. Splashblocks are a key component of a gutter system, as they direct storm-water away from the foundation of the building. The photo (below left) shows a functioning splashblock that is directing water away from the southwest door in the main building; however, the pine straw mulch is washing away and the soil is eroding. A flexible downspout extender that reaches to the sidewalk or driveway is recommended (see photo at right).

Downspout south of southwest door from the south ell to the parking lot. Extender is correctly installed and functioning properly.

Southwest door to parking lot off north wing. Splashblock is correctly placed, but mulch still washes onto the sidewalk, and soil is eroding.

There is one splashblock on the north side of the building (#1 below), but it is incorrectly placed and is totally ineffective when it rains. Most of the downspouts simply pour stormwater onto the ground where it pools by the foundations and erodes the soil (#2 below). On the west side, the downspout does not empty directly into the standpipe, so rainwater pools around the foundation (#3 below). The runoff from that same downspout and another one nearby is washing the mulch and the soil in the area (see #4 on next page).

#1

East of the front stairs. Same downspout, two views, ineffective splashblock. Left: splashblock filled with debris, incorrectly positioned. Right: during a rainstorm, the splashblock has moved, water is flooding the area, and the mulch is displaced.

#2

West of the front stairs. Same downspout, two views, no splashblock. Left: during a rainstorm showing amount and force of water. Right: mulch and soil have washed away. Algae and mildew on bricks indicate constant dampness.

#3

Northwest corner of south ell. Same downspout, four views, unattached and crushed downspout extender. Left: downspout does not empty directly into the extender. Right: during a rainstorm, water pours over the extender, flooding the area.

#4

Same area as #3 above during a rainstorm with water washing away soil and mulch. Left: view looking northeast. Right: view looking south-west to the parking lot.

In virtually every area where there is one of the problems just mentioned, the brick has mildewed (see photos on previous page), the ground is soft, and, at the east standpipe, the mortar has been lost from the brick wall. It is important that the downspouts all be properly positioned above splashblocks or empty into downspout extenders, all of which run down and away from the building foundation.

Downspout view at northwest corner of the south ell (same as #3 & #4 above). The blackened bricks indicate excessive moisture.

Deteriorating downspout at east junction of south porch and south ell. Top: above the porch roof, flashing needs to be replaced. Middle: below the porch roof, decaying soffit, black on brick indicates heavy moisture. Bottom: entering a standpipe, coping needs to be replaced,

The series of photos at left indicate the systemic problems in one of the downspouts, this at the east junction of the south porch with the south ell. Above the porch roof, the flashing around the downspout leading from the main building is incorrectly installed (top image). Where the downspout emerges below the porch roof, the wood soffit is rotting. Note darkened bricks in this area as well (middle image). The lower image shows the blistered paint on the downspout and the deteriorated concrete coping on the standpipe. A downspout replacement is recommended, in addition to new flashing, repair of the soffit and coping, and removal of the trash from the standpipe.

The major problem with Rebekah's drainage is the lack of gutter systems (gutters, downspouts, and splashblocks) on both the porch and the Annex. Historically, both had gutter systems. It is not known when they were removed, but it is likely that the Annex gutters were removed when that roofing was replaced in 1976. The porch gutters may have been removed during the 1985-86 renovations when the porch and Colonnade roofing shingles were replaced. Gutters and downspouts have to be removed when new roofing materials are installed; it is not uncommon for their re-installation to be "forgotten."

Whenever the gutter systems were removed, their absence has created multiple problems on both the porch and the Annex, especially with the brick walls. In fact, the most serious brick problems that the building has today are on the Annex and the front porch, the result of the excessively moist environments. The faulty disposal of rainwater (or, more accurately, the lack of disposal of rainwater) is the predominant cause of the continual dampness, aided by dense and encroaching vegetation.

The two photos below, taken during a rain storm, show water pouring off the porch eaves on the front side of the building. The photo to the left was taken above the front entrance stairs. The photo to the right was taken west of the front entrance stairs. The deterioration of the brick caused by the wet conditions from the stormwater runoff has been well documented on pages 36-37 and 43. It is recommended in the strongest terms that gutter systems be installed on the porch.

Rain water pouring over the front porch roof. At left, above the front steps onto the heads of visitors entering the building. At right, west of the stairs, creating a moist environment hazardous to all the building elements.

The deterioration of the brick caused by the wet conditions from the stormwater runoff on the Annex south well has been well documented on pages 43-45. The lack of gutters also allows stormwater to fall onto the bricks edging the below-grade window wells, causing water to collect in the wells. The series of photos below were all taken near the north window well on the east side of the Annex (see circled area in #1). Photo #2 (top right) was taken during a storm, and it shows rain running off the roof onto the window well bricks. Photo #3 (lower right) shows the water collecting inside that window well, moments after the photo #2 was taken.

Photo #4 (lower left) shows the interior of the same window well, but on a dry day. The granite layer at ground level serves as a damp course. Bricks, mortar, and the granite show signs of deterioration from the moisture-laden conditions. Once again, the lack of a gutter system to remove stormwater from the roof and direct it away from the building has caused more problems for the historic structural brick walls.

#2

#1

#4

#3

Filling in the historic window wells has been suggested as a way to ameliorate the drainage problems at the perimeter of the kitchen/Annex. Doing so might provide some stability to the foundation, but it is a drastic solution to the drainage problem — a dilemma more easily and inexpensively resolved by the addition of a gutter system. Also, a number of the window wells are used for venting for the mechanical systems located in the basement (see photo at right), and filling them in would mean relocating those vents. Finally, the remaining windows, while no longer used for direct ventilation, continue to provide light to the basement. Filling in the window wells is not recommended.

West window now used to vent mechanical systems in the basement.

The photos below show the interior side of the Annex wall adjacent to the east window well discussed on the previous page. At left, note the wet floor (photo was taken on a sunny day), the efflorescence and mildew on the bricks, the crumbling bricks, and the wholesale loss of an earlier plaster finish to the wall. At right is a close-up of the loss of three-coat plaster, peeling paint, the salt that has leached out of the wet bricks, and the mortar loss. The damp conditions have been in existence post-1963, and probably date from the 1975-76 roof replacement. In continuous damp, a brick wall will weaken over time, and become less resistant to the constant pressure being exerted upon it by the surrounding earth, especially when the soil is wet. If the Annex is not repaired AND given relief from the ongoing wet conditions, its structural integrity will be lost.

Inside the Annex basement. Views of the east wall showing a myriad a problems caused by the long-ignored continuously damp environment.

Drainage Recommendations

The lack of any way to direct stormwater away from the foundations has been at least partially responsible for the poor condition of the bricks in the lower courses of the porch (especially the north side) and the Annex (particularly on the south and east facades). Inappropriate repairs, especially with mortar that does not match the historic mortar, have led to the deterioration and failure of the brick. The shrubbery, especially surrounding the Annex, is creating a perpetually moist microclimate that is harmful to the structural brick. The following recommendations are as follows.

- This recommendation has the highest priority: install gutters, downspouts, and splashblocks or downspout extenders on the entire porch and Annex. Ideally, downspout extenders would lead into a campus-wide water reclamation system. If that is not possible, then extenders or splashblocks should be placed so they direct water away from the building's foundation.

- Remove or drastically trim back the dense shrubbery at the base of the east and south Annex foundations, and elsewhere around the building. No plant should touch the building anywhere. It is recommended that all plants be kept a minimum of two feet away from the building's surface.

- Replace existing deteriorated gutters and downspouts. All replacements should match the existing elements in size and shape. It is recommended that downspouts be painted to blend in with the portions of the building they traverse. This means that some should be white, while others should be a dark red color (e.g., on the front porch). The goal is to minimize the appearance of the downspouts.

- Install splashblocks or downspout extenders beneath or connecting to every downspout (excluding those that lead into standpipes), and in such a way as to direct water away from the foundation of the building. Ideally, all downspouts would lead into a campus-wide water reclamation system.

- It is recommended that the window wells be retained and not be filled in. These are historic features, and continue to fulfill their original purpose of admitting light and ventilation to the kitchen/Annex basement. Their current problems with water intrusion are not inherent to the wells themselves, but the result of non-existent stormwater drainage.

- It is recommended that positive grade be established away from the building on its entire perimeter. This means that the ground should slope down and away from the building foundation.

- The building's exterior should be observed annually during a rain storm. This is the ideal time to walk the perimeter (which this investigator did), to observe and record any drainage issues that need to be addressed.

CHIMNEYS

Rebekah has seven chimneys: five on the main building, and two on the south ell. There are four large chimneys equally spaced around the north cupola, while the chimney in the southwest corner of the main building (for the parlor fireplace) is much smaller. On the south ell roof, the east chimney is larger than the west chimney. All chimneys are constructed with corbelled brick piers at the corners, parged concrete stucco over brick sides, and corbelled brick at the crown.

West chimney on the south ell looking southeast toward Buttrick Hall.

Rebekah's seven chimneys: four (each with two flues) surrounding the north cupola; a small, single-flue chimney for the parlor fireplace southwest of the north cupola; and two chimneys at the south end of the south ell—the east chimney has three flues, and the west chimney has two flues. Circled chimneys still connect to visible fireplaces. Image from Google maps.

With seven chimneys, it is certain that Rebekah at one time had at least seven fireplaces. It is probable that it had fourteen fireplaces: two connecting to each of the four north chimneys, five connecting to the south ell chimneys, and the parlor fireplace connecting to the smallest chimney. Today there are only three fireplaces left: one in the parlor and two in adjoining offices northwest of the Lobby (see photos below). The back-to-back office fireplaces connect to the northwest chimney. All interior evidence of the other fireplaces has been removed or covered.

Rebekah's only extant fireplaces. Left: parlor fireplace. Middle and right: back-to-back fireplaces in offices off the Lobby.

Due to the limited roof access, the only chimney scrutinized closely was the west chimney on the south ell (see top photo preceding page). That chimney has two flues, indicating it connected originally to two fireplaces (neither of which has been located inside the south ell, and have probably been filled in). The chimney is lined with brick on the interior, and the crown is completely open, with no cap or covering of any kind. Like the east chimney on the south ell, there is an iron brace on the north side of the chimney. The braces on the two south ell chimneys are not original, and do not show up in historic photographs until 1935. The iron braces, which extend into the interior of the attic and are bolted to rafters, provide support (see middle photo above).

View of the iron brace supporting the south ell's east chimney coming through the roof and bolted to a rafter.

All of the chimneys on Rebekah were repaired during the course of the roof replacement in 1975-76. It is probable that at this time the concrete-based stucco on the sides of each chimney was applied, which would account for its high Portland cement content. A sample of the stucco was taken from the south ell's west chimney, and submitted for laboratory analysis to determine its composition. The analysis revealed that it was composed of sand and Portland cement, with a small amount of lime (see Appendix E for results of complete

mortar analysis with sand and fines samples). It appears to be a type N mortar, which has medium compressive strength and is appropriate for exteriors that are exposed to severe weather and high heat. It is a suitable mortar for use on the chimneys, but should not be used in any other areas of Rebekah.

Interior of the west chimney on the south ell showing two flues and deteriorated coping. Note complete lack of covering on the chimney top.

The crown of the chimney is extremely deteriorated, and in some places completely missing, coping (see top photo at right). Coping, sometimes called a wall cap, is a layer of impervious stone or mortar laid on the top of a brick wall or, in this case, on the brick sides of the chimneys. It serves to protect the brick from water intrusion, which can quickly deteriorate the bricks and mortar, compromising the structural integrity of the wall or chimney. In this instance, the coping is cracked and missing in places.

Loose bricks were visible on the crown and inside the chimney flues (see photo middle right). The bricks should be repositioned and securely attached. It is absolutely imperative that the coping be renewed so that it completely covers the exposed tops of the chimneys. Without this repair, the chimneys will become structurally unstable.

View down the west flue of the west chimney on the south ell. Note mortar loss and loosened bricks resulting from complete exposure to the weather.

Because the chimneys are not now functional and there is no plan to make them so, they should be capped to keep water and wildlife from making entry. Those chimneys that are no longer connected to fireplaces or interior openings can be capped completely. Low-profile caps that complete cover the chimney tops are commercially available (see photo below left).

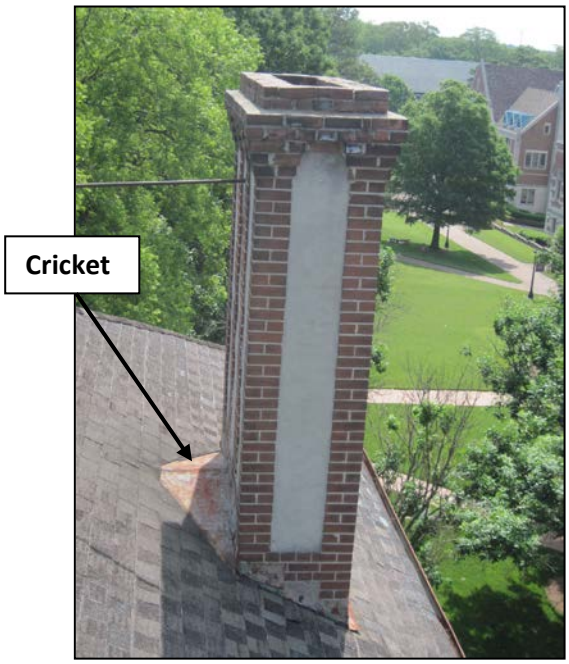
Low-profile chimney cap provides complete coverage on the 1872 Saint Simon's Lighthouse keeper's house.

However, for the chimneys which still have extant fireplaces (even if unused), it will be important to keep them ventilated, as interior condensation can become a problem if they are covered completely. There are readily available low-profile chimney caps which can provide security, protection, and ventilation without being obtrusive. The example below right, available in a variety of finishes, is from a local do-it-yourself home store. Because the chimneys never had caps or cowls of any kind, it is imperative that whatever coverings are ultimately installed be as unobtrusive as possible.

Low-profile chimney cap with ventilation. Photo from images.lowes.com.

All the chimneys need to be cleaned (see photos below). The appropriate way to clean masonry is discussed on page 49 and in Appendix G. All chimneys need to have their flashing replaced (see photo at right, also photo on page 79). See page 28 for a discussion of appropriate flashing materials and methods.

Chimney for the parlor fireplace. Note dirty condition of the brick and concrete stucco.



East chimney on the south ell. Note lack of chimney cap, dirty bricks, cracked stucco, and rusted flashing and cricket.

Chimney Recommendations

- All chimneys need to be cleaned appropriately (see Appendix G). It is recommended that the chimneys be cleaned prior to undertaking any repairs, and certainly before the installation of new flashing and roofing.

- Brick sections need to be repaired. This includes replacing mortar in kind (see section on historic bricks and mortar, pages 40-41, and repointing, pages 46-47).

- Remove deteriorated coping and replace with custom stucco such as was used on the chimney walls (see Appendices D and E for cement stucco analysis).

- Flashing around all the chimneys needs to be replaced. See page 28 for recommendations on materials and methods.

- All chimneys need to be capped. A distinction should be made between the type of capping used for chimneys which no longer have any interior openings, and those which open into existing fireplaces. Low-profile, unobtrusive chimney caps should be selected for both applications.

WINDOWS

Rebekah Scott Hall has a number of different window types, some of which retain their original design. Others have been altered. As is typical of the Italian Renaissance Revival style, the building is piano nobilé, meaning the windows on the lower floors are larger and more decorative. The higher the story of the building, the smaller and less elaborate the windows. Most of Rebekah's windows are double-hung,[93] but they vary in the number of lights. Generally, on the first and second floors, the windows are 9/1; that is the upper sash has nine lights while the lower sash has only one. This includes the windows in the one-story Annex. On the third floor, the windows are 6/1, having six lights in the upper sash and one in the lower sash. The same is true of windows in less important spaces, such as the staircases or recessed areas.

Above: Tooled limestone window sill. Note sloped top to direct water away from the window. Below: Drip cut beneath the sill ensures the water drips off instead of running down the wall.

All the windows have tooled limestone sills with drip cuts (see photos at right). "Tooled work" is a type of finish executed on stone, consisting of a series of parallel lines cut lengthwise into the stone with a flat chisel that is 3"-4½" wide.

The windows all have arches, but of two different types. The most common is a flat arch, called a jack arch, which is found on all the windows except the first floor windows on the south ell. The jack arch may be constructed solely of bricks, such as the first floor windows on the porch, but most have limestone details. The second floor windows have limestone keystones and two voussoirs. The third floor windows have only a limestone keystone. See photos on the next page.

The second type of window arch is the Roman arch, which forms a semicircle. These arches are found only on the first floor windows of the south ell, in the room which was originally Agnes Scott College's dining room, today the Katherine Woltz Reception Room (see photo on next page).

[93] Double-hung means both the top and bottom sashes can be opened and shut. Earlier windows often had a fixed top sash that could not be opened and are called single-hung windows.

The Five Main Window Types in Rebekah Scott Hall

First floor window on the porch. These are the largest windows, and the only windows with transoms. The transom lights match the star-patterned porch balustrade.

Second floor windows with 9/1 lights, limestone keystones, and two limestone voussoirs.

Third floor window with 6/1 lights, and a limestone keystone.

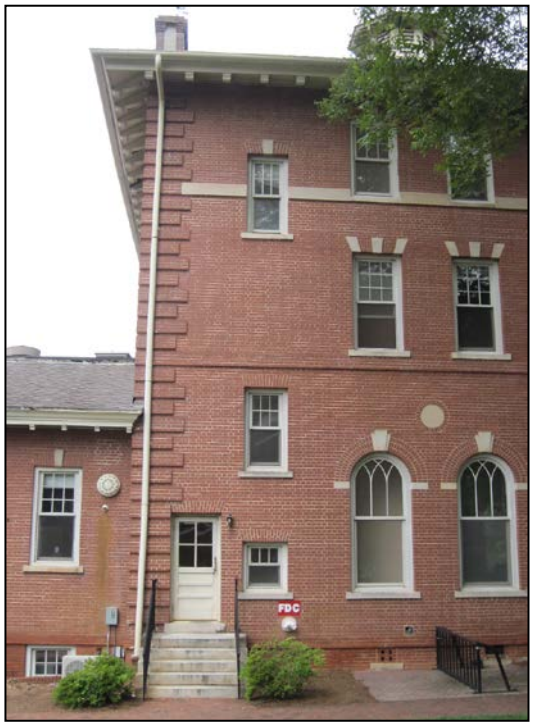
First floor window on the south ell. The lower sash with a single light opens. The top sash is fixed, and its lights form 3 lancet arches. The top of the window is curved and has a Roman arch above it. The arch has a lime-stone keystone and springers.

Window on the original kitchen, now the Annex. It has 9/1 lights, and a limestone keystone.

A variety of other windows exist, including the triple windows in the center of the second and third floors of the east and west wings of the main building (see photos below). These windows have been altered over time to accommodate doors leading onto the east and west fire escapes. All the fire escapes were removed and these former doors were converted back to windows during the 1985-86 renovation.

View of the east end of the main building. The central windows in the east and west wings have been altered. At one time they were doors leading onto the fire escapes.

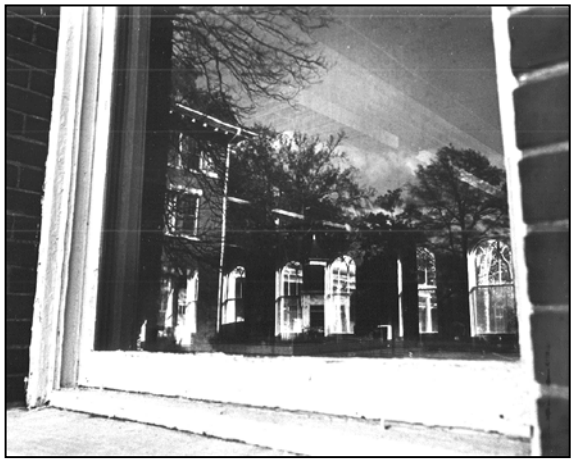
The west façade of the main building. The windows on the top floor and both upstairs central windows have been altered. The small, 9-light casement windows on the second floor do not appear to have been changed, except the insertion of dryer vents in the far left window. The first floor windows match those on the porch, except the jack arches have limestone keystones and voussoirs.



The photo at left shows the south ell windows with the different types of arches. The irregularly spaced windows to the right of the door provide light to the southeast staircase. This image also shows the horizontal lines typical of an Italian Renaissance Revival style building: a brick stringcourse divides the first and second floors, and a limestone beltcourse separates the second and third floors. The same horizontal dividers can be seen in the photo, top right above.

East façade, junction between the south ell and the one-story kitchen/Annex. At right, note the different windows for each of the three stories of the south ell. The small, irregularly-placed windows near the door are in the southeast stairwell. Both Annex windows at left are 9/1.

The windows are in generally good condition. In the 1985-86 renovation, the original wood sashes (see photo at right) were replaced with aluminum sashes, and the wood jambs were covered with aluminum. The historic window sizes and lights were replicated in the replacements. Because the windows have aluminum sashes, there is little maintenance required. No broken glazing was observed. The bricks and mortar of the window surrounds are in good condition.



Lower sash of historic wood window on west side of the dining room, prior to 1985-86 renovation. From ASC Archives.

Replacement of the windows is not recommended; however, it is highly recommended, that all exterior sealant around the window sash perimeters be replaced, as these are the places where exterior air enters. The advantages of double-pane glass are minimal compared to their problems and short life-spans. The College is strongly urged to retain functioning double-hung windows, and not install fixed windows in the dormitory rooms.

Window Recommendations

- Retain functioning, double-hung windows (windows that open and shut). Do not install fixed sash windows

- The main problem is with the windows that have steel lintels (see photo at right). The paint on the lintels is peeling badly and the steel beneath has rusted. The lintels should be cleaned, and any loose paint removed. The steel needs to be primed and repainted.

- All of the windows need to be cleaned. Some of the brick arches, and the combination brick and limestone arches are very dirty. See page 49 and Appendix G for recommendations on cleaning masonry.

- Replace all exterior sealants around the window perimeters.

Second floor window with steel lintel. Paint is badly deteriorated, and the steel is rusted. The mud dauber's nest should be removed.

DOORS

Rebekah Scott Hall originally had seven doors. Three were double doors: the front door on the main (north wing) building, the east door (by the Colonnade), and the door leading from the south porch into the recess between the south ell and the main building. Two of the original single doors remain: the southeast door from the south ell onto the quad, and the second floor balcony door. Two doors are no longer extant: both were on the south side of the original kitchen ell (now called the Annex), one of which led onto the first floor, while the other led into the basement. These doors were removed during the 1959 renovation.

The most elaborate doors are centrally located in the front entrance. The 40'-wide front entrance projects from the plane of the main building approximately five feet. It is approached by five granite front steps composed of two stones each with tooled treads and risers, flanked by brick walls with granite coping stones.

The front entrance is grander than the rest of the building, with double columns at the top of the stairs. The front doorway (see photo below right) has double, single-light wood doors with panels topped by a four-light fanlight. The brick basket handle arch above the fanlight has limestone springers, two limestone voussoirs, and a limestone keystone. The paneled sidelights flanking the front doors are glazed with leaded glass.

The front door originally was stained black (see photo below left), which may have had a varnish on top. Since then, many others layers of yellowish white and white paint have been applied (see Appendices B and C for paint analysis reports).

The Aurora staff photo taken on the front steps of Rebekah. Note dark stained front doors with light-colored columns and side-lights in the background. From the 1908 Silhouette, p. 50.

Rebekah's front (north) double door was originally stained black, but the columns, sidelights, and fanlight were originally painted yellowish-white.

The east door led from the Colonnade and porch into the original chapel, which was in the east wing of the main building (a space now occupied by Admissions). Less elaborate than the front entrance, it nevertheless has paneled double doors with large vertical lights (see photo below left). The leaded fanlight has a decorative sunburst pattern (see photo below right). Like the front door, it was originally stained black, but has been painted white or off-white many times since.

Rebekah's east door, which was the primary entrance into the original chapel (where Admissions is now located).

Detail of east door's fanlight, view from inside.

The second floor balcony door is a single wood door with a square single light window above two vertical panels (see photo below right). On either side are two 6/1 sidelights, which are modern replacements. Above the balcony door is the carved limestone "Rebekah Scott Hall 1905" sign (see photo below left).

Original name and date stone above the second floor balcony door, carved in limestone.

Balcony door. Note deteriorated paint.

The southeast door in the south ell is an original opening, as are the granite steps and stoop (see photo at right). The door, however, is not original; neither are the handrails.

Southeast door in the south ell. This door opening, with its granite stairs, is original to the building. The door is a replacement.

The double doors leading from the south porch into the central staircase (and eventually the lobby) may be original, but it is obvious that alterations have been made in this section of the building (see left photo below). The current doors were probably originally located in the exterior wall and opened off the porch. Today, they are recessed inside the vestibule. The changes were likely part of the 1956 renovations which enclosed the central stair to create a fire-rate egress.

Above entrance to these doors is a small balcony, which has a short parapet wall separating it from the porch (see right photo below). This balcony is accessible from either the porch roof or the double windows on the second floor of the central stair. As the balcony has not been rated for load-carrying capacity and the parapet wall does not meet code, it is recommended that the double windows be kept locked.

Left: east door at the recessed junction of south ell with the main building. It leads from the south porch into the central stair enclosure.
Right: the short parapet behind which is a small balcony that forms the roof of the recess.

The flooring of the balcony is actually rolled rubber roofing, showing that the structure also functions as a portico above the entrance. In any case, the roofing is worn, and the junctures with the walls have been inexpertly repaired. It is recommended that the roofing be replaced and correctly flashed. Finally, the top of the parapet is a wood rail, while the interior wall is wood V-board. The paint on these elements is in terrible condition. It should be scraped, sanded, primed, and painted.

Left: view over the parapet looking at the floor and central-stair windows. Note deteriorated wood rail and leaves accumulated on both the porch and balcony.
Right: view of the balcony from the interior stairs. Note deteriorated paint and flashing.

Also part of the 1956 renovations was the installation of a new fire-rated staircase in the west wing of the main building. An exterior exit was necessary, and was created at the southwest corner of the building (see photo at right). The new door and transom was installed, along with concrete stoop and stairs, and metal handrails.

The southwest door of the main building, built in 1956 when the west stair was installed.

The 1959 renovations included many changes to the one-story original kitchen. During that time, the interior was divided into offices with a central hall leading to the new south door (see photo next page, top right). The new door replaced the two original doors. To the left of the current door (where a window was inserted) was the original back door into the kitchen. Where the current door is now were the stairs leading down to the door into the basement. Evidence of the earlier south doors and their stairs can be found in the 1911 Sanborn Fire Insurance map (page 21), the 1923 campus aerial map (page 13), the campus topographic map 1923-30 (page 14), and the campus aerial 1940-50 (page 22).

The portico roof above this door was not accessed during this study (photos below left). However, the lower photo shows repairs made with tar at the juncture of the portico roof with the brick façade. It is strongly recommended that the portico roof be inspected, and roofing and flashing be replaced or repaired as needed.

The south door of the Annex. This door opening was created during the 1959 renovation of the kitchen into offices. The two original south kitchen doors were removed and bricked over.

South portico roof views.

The southwest door in the south ell was installed during 1985-86 renovations. It originally had stairs where the accessibility ramp now is.

The latest door added to Rebekah was the southwest door on the south ell. It is first shown in the 1985-86 architectural drawings, but with stairs running alongside the building. At some point, the stairs were removed, and a concrete accessibility ramp was installed (see lower photo at right).

The roof of the portico above this door appears to be covered with rolled EPDM rubber roofing (see photo top left on next page). The roofing is in good condition, but the sealant between the roof and the brick façade is deteriorating. It is recommended that the existing sealant be removed, and new metal flashing be correctly installed.

Portico roof above the southwest door (with accessibility ramp).

Original granite stoop at the southeast entrance to the south ell. The north corner is broken and is also cracked. It appears that an earlier handrail that attached into the granite had rusted and was removed.

The doors are in generally good condition as most are protected from the elements by porticos or the porch. One exception is the unprotected southeast door leading to the main quad (see photo on page 89). Its concrete stoop is cracked at one corner (see photo above right), and should be repaired.

The door to the second floor balcony, which is not protected, is in poor condition (see photo on page 88). The paint, especially on the exterior, is peeling, but the entire door needs to have the old paint sanded, primed, and re-painted. The weatherstripping is worn and needs to be replaced. The several days the investigators were in the building, the balcony door was invariably unlocked. It is recommended that a secure lock with controlled access be installed (see Balcony section below).

All of the stairs are in generally good condition, as is the accessibility ramp leading from the west portico to the parking lot. The brick stairs on the south Annex need to have some bricks reattached. All the stairs need to be cleaned.

Door Recommendations

- At all times use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, and painting doors. Use only lead-free primers and paint.

- The doors in general appear to be in good condition, although all need to be cleaned.

- The balcony door needs to be stripped, repaired, and then primed and repainted. The weatherstripping needs to be replaced. It is recommended that a secure lock be installed on the balcony door.

- The roof to the south Annex entrance should be inspected, with special attention to the wall juncture. Replace roofing and flashing as necessary.

- The roof above the recessed double door leading into the Lobby from the south portico is in poor condition. The rolled asphalt roofing should be replaced and new flashing installed. In addition, the wood elements of the parapet wall should be scraped, primed, and repainted.

- A corner of the granite stoop at the southeast door into the south ell is cracked and broken. It should be repaired.

- Re-attach loose bricks in the stairs leading to the south Annex door.

- All stairs need to be cleaned.

- All exterior sealants around the door openings should be replaced.

BALCONY

The front entrance has a balcony on the second story with a wood balustrade across the front flanked by brick piers with round limestone finials. The balcony is accessed via a door from the lobby of the second floor dormitory lobby.

The balcony floor and balustrade were replaced during the 1985-86 renovation. The balustrade was supposed to match the existing one, but it differed in materials, size, and design. The new balustrade was wood, but was made of thin trim pieces rather than what appear in historic photographs below to be 2" wide boards (see modern and historic photos below). The new design is generally correct, except the boxed **X** design element is square, while the original was a narrower vertical rectangle. The new balustrade approximates the historic balustrade, but it does not meet the standard of "replace in kind".

Above left is the current balcony balustrade installed in 1985-86. At right are two images from the 1912 Silhouette (p. 137), showing the original balustrade design.

The balustrade on Inman Hall, constructed in 1911, appears to more closely match Rebekah's original balustrade (see photo on next page). This would not be surprising as both buildings were designed by the same architect. It is not known if the Inman second story balcony balustrade has been replaced, but the existing balustrade is certainly closer to Rebekah's original than Rebekah's current balustrade. The balcony woodwork is another example where Rebekah's architectural features were removed or replaced, where Inman Hall's appear to have remained intact (see foundation vents on pages 47-48).

The balcony balustrade on Inman Hall (built by the same architects a few years after Rebekah) is a closer match to Rebekah's original balcony balustrade. It is not known if the current Inman balustrade is original, or if it has been replaced.

The balustrade appears to be in good condition, but it is extremely dirty. The wood needs to be cleaned, and if any deteriorated wood sections are discovered, they should be replaced. After cleaning, it may be determined that the balustrade needs to be repainted.

Limestone finials top the brick piers set at the front corners of the balcony.

At the corners of the balustrade are brick piers topped with round limestone finials (see photos above). The bricks are dirty, and there is some mortar missing. The limestone finials and tooled bases are also dirty. See page 49 for information on cleaning masonry, and pages 46-47 for information on repointing.

The balcony flooring has accumulated dirt and mildew (see photo below). Some boards are cracked and may be rotted. It is completely devoid of any paint or sealant. It is strongly recommended that it be cleaned, damaged floor boards replaced, and the entire wood floor sealed.

Use of the Balcony

No information could be located during this study to show that the balcony's load-carrying capacity has ever been certified by an engineer. The side parapet walls also do not meet the 42" height required for a porch/deck railing. Until the balcony can be determined to meet load-carrying standards, and a maximum weight limit is established, it is recommended that students be denied access to the balcony. For this reason, it is recommended that a secure lock ensuring controlled access be installed on the second floor door to the balcony (see Door section above).

Balcony Recommendations

- At all times use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, and painting window elements. Use only lead-free primers and paint.
- Clean all the balcony surfaces: floor, balustrade, piers, finials, and side walls.
- Repair or replace any deteriorated wood elements.
- Repaint the balustrade.
- Seal the floor.

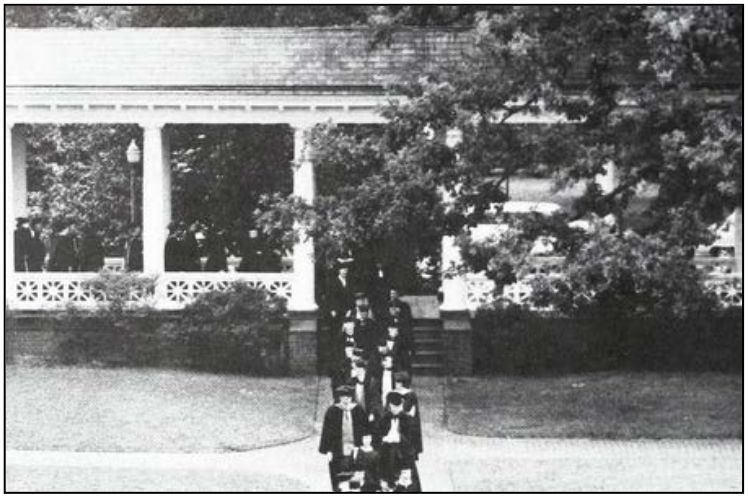
- Repoint the brick piers where necessary, using custom mortar manufactured to match the historic mortar.

- If the balustrade ever needs to be replaced, it is recommended that historic photographs, as well as Inman Hall's balcony, be used in the manufacture of a replacement balustrade so that the historic design and dimensions can be restored.

COLONNADE

The Colonnade connects Rebekah's porch to the west door of the Main Hall. It originally had a wood floor that was level with the Rebekah's porch. Its columns and cornice matched those of Rebekah, and it, too, had a load-bearing brick foundation with nine-hole diamond vents. The pitch of the Colonnade roof, however, is steeper than that of Rebekah's porch. Two sets of wood stairs originally provided access from the north walkway between Rebekah and Main Halls and south onto the quad. Through the years, the stairs were replaced at least once, from an earlier all-wood stair with side runs (see ca. 1913 photo below left), to a wood stair with side brick piers (see 1940 photo below right).

Ca. 1913 commencement. Note wood stairs with side runs. Photo from Sayrs and Cozzens, p. 55.



1940s commencement. Note wood stairs with side brick piers. Photo from Sayrs and Cozzens, p. 24.

As part of the 1985-86 renovation, the Colonnade was made more accessible (five years before the Americans with Disabilities Act of 1990 was enacted by the U.S. Congress). The historic wood floor and underlying structure of the Colonnade were completely removed, along with the two sets of stairs. The new floor was 36' brick paver ramp with a 1" in 12" slope. The area beneath the new floor was filled with compacted earth. At grade brick paver ramps were installed in place of the two staircases, and were laid on 4" concrete slabs. New concrete block piers with brick veneer were installed under the columns, and 2" steel handrails were installed in the walkway.

Current view of the Colonnade, looking west toward Rebekah. Note the sloping brick ramp, at grade entrances, and handrails.

The Colonnade is in very good condition, with the exception of the west brick wall at the north entrance (see photos below). The edges of the bricks at this corner are broken and scraped, and present a poor appearance to anyone, especially in a wheelchair, entering the quad from the north.

Colonnade Recommendations

- Replace scraped, chipped, and broken bricks at the corners of the at-grade entrances with shaped bricks that have rounded edges.

DECORATIVE FAÇADE PANELS

Rebekah's third story on the main building has decorative panels inset between pairs of windows (see photos below). The panels are stuccoed and have inlaid brickwork. Some panels are narrow and contain a single brick circle. Other panels are much larger, and have a large diamond brick pattern inlaid and a small brick circle in the center of the diamond. The bricks are inlaid as rowlocks,[94] and some of the bricks forming the circles are gauged. A brick is gauged when it has been hand-shaped after firing to fit in a particular location or position. The shaping is accomplished by cutting, filing, or sanding the brick. The gauged bricks that form the circles are wider at their outer edges (the outer edge of the circle), and narrower at their inner edges. It should be noted that only the bricks that form the circles in the third floor panels have been gauged. Only a few of the bricks that form the circles on the south ell first floor (see photo below right) are gauged. Other examples of gauged bricks in the third floor panels are those which have been cut to form the points of the diamonds (see photo on next page).

Left: West façade of the main building showing the four stuccoed panels on the third floor.
Right: Large stucco panel with diamond and circle brick inlay.

Left: West façade of south ell showing small circles between the first floor windows.
Right: Close-up of a circular stuccoed panel. Note cracked stucco.

[94] A brick laid on horizontally on its longer end with the shorter end exposed, or, the brick laid as a header turned on its side.

There are no panels on the third floor of the south ell. Much smaller decorative panels, however, are on the first floor of the south ell, just above and between the arched windows (see bottom photos on previous page). These panels contain the same stucco, but are circular panels lined with brick rowlocks. There is no decoration inside the circles.

Most of the stucco panels appear to be in fair condition. Some have sections of stucco where the surface has spalled off (see photo below). Other panels have surface cracks, and some of the stucco is chipped. The bricks are in good condition. It is not known if these panels have ever been maintained.

A sample of the stucco was sent for analysis so replacement stucco can be formulated to match the historic stucco. See Appendices D and E for the stucco analysis reports.

All of the panels need to be cleaned, but this should be undertaken only with the utmost care. Appendix J is a technical brief on the care of historic stucco, which should be used as a reference in any treatment of Rebekah's stucco façade panels.

Stucco has spalled off in the interior sections of this panel. Other areas show cracks and dirt.

Examples of gauged bricks.

Recommendations for Decorative Façade Panels

- Clean all of the panels, but with the gentlest means possible. Refer to Appendix J for a technical brief on the care of historic stucco.

- Repairs to the stucco should be made only with replacement stucco custom manufactured to match the historic stucco. See Appendices D and E for the results of the stucco analysis.

PRIORITIZED MAINTENANCE RECOMMENDATIONS

The following recommendations are grouped by categories listed in general order of priority. Within each category, the recommendations are listed in order of importance unless the list is numbered, which indicates the sequential order in which the actions should be undertaken.

Running water in the northwest crawlspace

- ***Immediately*** locate the source of the running water in the northwest corner of the main building's crawlspace and ***shut it off***. Repair or replace whatever defective element is the cause of the water flow. Install fans to dry out the crawlspaces. Clean and make necessary repairs to crawlspace elements. Once the soil is dry, install a plastic vapor barrier.

Drainage Recommendations

- Install gutters, downspouts, and splashblocks or downspout extenders on the porch and Annex. Ideally, downspout extenders should lead into a campus-wide water reclamation system. If that is not possible, then extenders or splashblocks should be placed to direct water away from the foundations.
- Replace all deteriorated gutters and downspouts. Replacements should match the existing elements in size and shape.
- Install splashblocks or downspout extenders at every downspout. Extenders should lead into a campus-wide water reclamation system. I that is not possible, then extenders or splashblocks should direct water away from the foundations.
- Do not fill in the Annex window wells.
- Establish positive grade away from the foundations.

Roofing Recommendations

- Thoroughly examine all areas of the roofs. Recommendations for repairs to the north cupola roofing are not possible due to limited roof access.
- For the main building roof and the steep-slope section of the Annex roof:
    1. Remove the current shingles to the wood decking.
    2. If the decision is made to install slate roofing, it will be necessary to have a structural engineer make recommendations for the modification of the current roof structure to enable it to carry the weight of slate tile roofing. Remove all the wood decking and make any structural alterations recommended by the engineer. Install new wood decking.
    3. ANY SLATE TILES FOUND SHOULD BE CAREFULLY REMOVED AND SAVED. These can be used to inform slate tile choices should a slate roof be considered. Place one of the retrieved historic slate tiles in the ASC archives.
    4. Install bituminous membrane at valleys, ridges, edges, and penetrations.
    5. Install felt underlayment over decking.
    6. If new slate tile roofing is used, install slate tiles that match the historic tiles in shape, size, thickness, and color. NOTE: only a roofer with documented experience in the installation of slate roofing should be employed. Most modern roofers do not have the expertise to install a slate roof properly.
    7. If new slate tile roofing is not used, install 40-year composition asphalt-fiberglass shingle roofing or one of the faux slate tile alternatives.

- For the low-slope section of the Annex roof:
    1. Remove the existing rubber roofing to expose the wood deck.
    2. Install a cold-process built-up roofing system.
- Replace flashing at all roof penetrations.

Brick Recommendations

These are listed in the order in which actions should be taken; i.e., cleaning (#1) should precede any repointing of mortar (#2) or replacement of brick (#3).

1. Clean all of the brick surfaces. No high or moderate pressure-washing should be used. See Appendix G for a technical brief on cleaning historic masonry buildings.
2. Repoint mortar in areas of deterioration using custom mortar formulated to match the historic mortar. See Appendices D and E for the mortar analysis and Appendix H for a technical brief on repointing mortar joints in historic masonry buildings.
3. Replace deteriorated bricks with bricks custom manufactured to match the historic bricks in size, color, texture, shape, and composition.
4. Replace all sealants around any penetrations through the brick.
5. Cover any existing openings in the brick that go through to the interior.
6. Install dryer vents on the west side that blend better with the brick façade.

Vegetation Recommendations

- Limb up the two large magnolias flanking the front entrance to six feet or higher.
- Trim back ***any*** plant material to a minimum of two feet from any building surface.
- Cut back and thin all trees overhanging or shading the building.

Recommendations for Wood Elements

1. At all times use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, and painting wood elements. Use only lead-free primers and paint.
2. It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white (Munsell color notation 5 Y 9/1) with a glossy finish. See Appendix C for the paint analysis results and a color sample.
3. Clean all the exterior wood elements using the gentlest method possible. See Appendix G for instructions on cleaning. Never sandblast. Never use high or moderate pressure washing. Do not use rotary sanders or rotary wire strippers.
4. After cleaning, determine if the surface needs to be repainted. Repaint if necessary.
5. If the paint has deteriorated, remove the paint down to the next sound paint layer, then repaint. Do not use chemical strippers.
6. If paint is blistered or peeling so that bare wood is exposed, then remove the loose paint completely. Never sandblast, or use orbital or belt sanders or rotary drill attachments. Never use high or moderate pressure washing. Never use a blow torch.
7. Patch and repair damaged wood elements using replacement wood, epoxy, fillers, or a combination. For rotted, severely damaged, or missing wood elements, replace in kind.
8. Repair or replace cracked or broken porch floor boards and porch floor boards with missing edges using 5" tongue-and-groove to match the historic flooring. Replace any 5" V-joint flooring with 5" tongue-and-groove.
9. Prime bare wood within 48 hours, then paint.

10. Paint exterior elements using the historic color determined through laboratory paint analysis. See Appendices B and C for the paint analysis reports.
11. Eliminate carpenter bee nests from the south wing of the porch.

Chimney Recommendations

- Clean all chimneys (see Appendix G).
- Repair deteriorated brick. Replace mortar in kind (see section on historic bricks and mortar, pages 40-42, and repointing, pages 46-47).
- Remove deteriorated coping and cement stucco. Repair and replace with custom stucco. See Appendices D and E for cement stucco analysis report.
- Cap all chimneys. Completely cap chimneys which no longer have any interior openings. Vent cap chimneys which open into existing fireplaces. Use only low-profile, unobtrusive chimney caps.

Recommendations for Decorative Façade Panels

- Clean all panels by the gentlest means possible. Refer to Appendix J for a technical brief on the care of historic stucco.
- Repair the stucco using only a replacement custom formulated to match the historic stucco. See Appendices D and E for the stucco analysis reports.

Crawlspace Recommendations

- Install additional metal mesh vents in the building foundation.
- Install functioning doors on the porch crawlspace accesses.

Window Recommendations

- At all times use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, and painting window elements. Use only lead-free primers and paint.
- Clean all windows.
- It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white (Munsell color notation 5 Y 9/1) with a glossy finish. See Appendix C for the paint analysis results and a color sample.
- Remove loose paint from steel lintels, sand, prime, and repaint the lintels.
- Replace all exterior sealants around the window perimeters.
- Retain double-hung windows (windows that open and shut). Do not install fixed sash windows.

Door Recommendations

- At all times use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, and painting doors. Use only lead-free primers and paint.
- Clean all doors.
- It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white (Munsell color notation 5 Y 9/1) with a glossy finish. See Appendix C for the paint analysis results and a color sample.

- Remove all loose and peeling paint from the balcony door. Repair the wood, then prime, and repaint. Replace the weatherstripping. Install a secure lock.
- Repair the granite stoop at the southeast door into the south ell.
- Clean all of the exterior stairs.
- Replace all exterior sealants around the door openings.

Colonnade Recommendations

- Replace broken bricks at the corners of the Colonnade's at-grade entrances with shaped bricks that have rounded edges.

Balcony Recommendations

- Due to the presence of lead-based paint on the balustrade, use only certified renovators to ensure they follow lead-safe work practices when repairing, replacing, cleaning, painting, and sealing balcony elements. Use only lead-free primers and paint.
- It is strongly recommended that all of Rebekah's exterior wood elements be painted the original color, which was a yellowish white (Munsell color notation 5 Y 9/1) with a glossy finish. See Appendix C for the paint analysis results and a color sample.
- Remove deteriorated paint on the balustrades down to the next sound layer. Repaint.
- After cleaning, seal the balcony floor.
- If the balustrade is replaced, use historic photographs and Inman Hall's balcony to manufacture the replacement balustrade in order to restore the historic design and dimensions.

CYCLICAL MAINTENANCE & PERIODIC INSPECTION RECOMMENDATIONS

For the Exterior Surfaces and Elements of Rebekah Scott Hall and Immediate Vicinity

CYCLICAL (ROUTINE) MAINTENANCE	
TASK	**FREQUENCY**
Walk site to pick up trash, store work tools, generally tidy the site	Daily
Sweep porch, stairs, accessibility ramp, Colonnade	Daily or as needed
Wipe down porch furniture	Daily or as needed
Sweep/blow walkways, driveway, parking lot	Weekly or as needed
Mow grass	Weekly during growing season
Trim shrubs, vegetation away from all building surfaces	Monthly during growing season
Clean gutters	Semi-annually; may need more frequent cleaning during the fall
Remove leaves, branches, debris from all roofs	Semi-annually
Clean exterior surfaces	Annually
Touch-up paint, especially in high-traffic areas	As needed
Repaint exterior wood and metal elements	Every 10 years
PERIODIC INSPECTIONS	
INSPECTION	**FREQUENCY**
Walk around the building during a rainstorm to detect drainage problems	Semi-annually
Inspect all roofs	Annually
Inspect chimneys, pipe stacks, hood vents, all roof penetrations, and their flashing	Annually
Walk around the building and inspect crawlspaces for needed exterior repairs and services (see note below)	Annually
Walk all walkways to determine if brick pavers need to be reset	Annually
Professional termite inspection	Annually
Professional fire suppression system inspection	Annually
Professional arborist's inspection of tall trees around the building	Annually
NOTE -- Items to check for include but are not limited to:	
Paint--cracking, peeling, staining or other discoloration	
Downspouts and splash blocks--unsecured, unattached, misplaced	
Stairs--unsecured, broken pieces	
Accessibility ramp--loose railings, uneven surface	
Balustrade--loose railings or posts	
Doors--sticking, malfunctioning locks	
Signage--missing or obscured signs	
Foundations--loose or missing bricks, mortar loss, vegetation growth	
Cornices, eaves, brackets--signs of wear, loss of material	
Inspect crawlspace--missing plastic sheeting, debris, pest infestations	
All surfaces--graffiti, dirt, stains, damage, vandalism	

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Rebekah Scott Hall (RSH) Building Chronology / ASC General Chronology		
Date	**Item Description**	**Source Information**
July 22, 1889	Decision to establish a female seminary under the auspices of Decatur Presbyterian Church.	Gaines, *Story* , pp. 6-9
September 24, 1889	Decatur Female Seminary opened, leasing the Allen house (later called the White House) south of the Georgia Railroad on the present site of the Main building; moved to site just north of present-day Inman Hall in 1890.	Gaines, *Story* , pp. 11, 16
Spring 1890	Colonel George Washington Scott (1829-1903) donates $40,00 to school on condition it is renamed Agnes Scott Institute (ASI) after his mother.	Gaines, *Story* , p. 19
November 12, 1891	Agnes Scott (Main) Hall, architects Bruce & Morgan, dedicated, cost $112,250.00 for 5 acres of land, building, furnishings.	Gaines, *Story* , p. 20
May 1896	Reverend Frank Henry Gaines named first President of ASI.	Gaines, *Story* , p. 26
1901	Pattillo lot adjoining ASI to the west (3 acres plus West Lawn Cottage) purchased; rooms for 12 boarding students; future **RSH** site.	*Silhouette* 1902, p. 15; Gaines, *Story* , p. 31; McNair, *Lest* , p. 31
Fall 1902	White House leased.	McNair, *Lest* , p. 33
October 3, 1903	Colonel George Washington Scott dies.	Gaines, *Story* , p. 27
October 13, 1903	Samuel Martin Inman (1843-1915) appointed new Chairman of the Board.	Gaines, *Story* , p. 30
ca. 1903	Gymnasium/classroom and Domestic Scienc buildings constructed between **RSH** and Main and current Buttrick Hall.	Gaines, *Story* , p. 32; McNair, *Lest* , p. 34
Late summer-early fall 1904	M. A. Candler house purchased for the Infirmary. About the same time the South Decatur car line was extended from south of the campus, ending at a location between Main and the White House.	Gaines, *Story* , p. 32; McNair, *Lest* , p. 33
February 9, 1905	Board of Trustees authorizes **RSH**, to be named for Rebekah Scott, the deceased wife of Col. G. W. Scott; fundraising begins.	McCain, *Story* , p. 24
After February 9, 1905	West Lawn Cottage moved to area south of Main Hall and north of Ansley Street in preparation for construction of **RSH.**	Sanborn Fire Insurance Map, 1911, Sheet 8; Campus Topo Map, 1922
By June 15, 1905	Donald and Pierson have a contract to build **RSH** after plans by Morgan & Dillon.	*Manufacturer's Record* , Volume 47, June 15, 1905, p. 512
Spring 1906	Agnes Scott Institute becomes Agnes Scott College and grants its first four-year degrees.	McNair, *Lest* , pp. 30, 285

Date	Item Description	Source Information
May 30, 1906	**RSH** is dedicated during Commencement exercises.	*Atlanta Constitution* , Thursday, May 31, 1906; **RSH** Dedication Program
September 1906	**RSH** opens for the Fall Semester 1906.	McCain, *Growth* , p. 4
1907	Agnes Scott College accredited by the Association of Colleges and Secondary Schools of ths Southern States.	Gaines, *Story* , p. 35
November 1909	Typhoid fever epidemic caused by a broken sewer contaminating the drinking water supply, which was provided by the well near the front of Agnes Scott Hall; the well house (then called the Summer House, now the Gazebo) covered the well. After the epidemic, the well was capped; ASC went to city water and constructed the 25,000 gallon tank that stood behind **RSH.**	McNair, *Lest* , p. 48; Sayer & Cozzens, p. 7; Sanborn Fire Insurance Map, 1911, Sheet 8
1910	Numerous houses acquired on South Candler and Ansley streets. House called East Lawn moved from Inman site prior to construction.	Gaines, *Story* , p. 32; McCain, *Story* , p. 28-29
June 1911	Inman Hall, named for Jennie D. Inman (1st wife of S. M. Inman), Morgan & Dillon, architects; Carnegie Library (gift of Andrew Carnegie), and Lowry Science Hall (gift of Col. Robert J. Lowry) dedicated.	McNair, *Lest* , p. 47
1913	Agnes Scott Academy for preparatory students (high school students) discontinued.	McCain, *Story* , p. 31
1919	Conn property (between **RSH** and South McDonough Street) purchased by ASC.	Campus growth map, 1890-1932
November 1921	Anna Young Alumnae House constructed, E. C. Wachendorff, builder; named for ASI/ASC math professor. 1st alumnae house built on a women's college campus in the South, predated by only one other in the U.S.	So. Candler St.-Agnes Scott College Historic District NR form; Gaines, *Story* , p. 33; CIC, *Historic Campus Architecture Project* ; McNair, *Lest* , p. 59
Spring 1922	For several years, ongoing discussion about moving school to 200 acres in Druid Hills; final decision against the move necessitated purchasing more land.	McCain, *Story* , p. 33
May 25, 1923	Dr. James Ross McCain named second president.	McCain, *Story* , p. 41
1923	Shrubbery planted around **RSH** and the Colonnade; campus aerial photo shows two tennis courts at SW corner of **RSH** where parking lot is today.	*President's Annual Report* , May 25, 1923, p. 7; 1923 campus aerial

Date	Item Description	Source Information
1924-25	South Decatur-Stone Mountain trolley line relocated to Doughtery Street. Before that, thedummy car line entered campus by the 1929 steam plant, crossed Dougherty Street and ran along the west side of the now Bullock Science Center (then the soon-to-be athletic field), turned east and ran along what was then Ansley Street to South Candler Street. ASC paid to have the tracks relocated, Dougherty Street improved, and Ansley Street closed.	McNair, *Lest* , p. 73
1925	Campus plan by architects Cram & Ferguson (Boston), later modified by Edwards & Sayward.	*McCain, Story, p. 42*
September 1925	George Bucher Scott Gymnasium constructed; Edwards & Sayward, architects; gym/auditorium could seat 1600.	*McCain, Story, p. 42*
1926	All dormitories (including **RSH**) had, by this time, abundant fire escapes; a hose, fire buckets and extinguishers on every floor; and a night watchman who patrolled the residences.	*ASC Bulletin* 1926-27, pp. 129-30
Summer 1926	Summer House (originally the well house, now the Gazebo) moved from in front of Main to west side of **RSH** and enclosed with glass to be the "very comfortable" Day Student Hut.	*Alumnae Quarterly* , Nov. 1926, p. 6
1926	After the great mosquito battle of September 1925, it was necessary to screen every building on campus (including **RSH**); cost of copper screening for all dorms $3,761.90.	*Alumnae Quarterly* , Nov. 1926, p. 6; *Treasurer's Report* , May 2, 1927, p. 4
1926	New front concrete driveway with concrete sidewalks and curbing; removal of first drive leading straight to Main from College Avenue, replaced with sod and a cement walkway; entire campus graded and planted with grass.	*Alumnae Quarterly, Nov. 1926, p. 6; Treasurer's Report, May 2, 1927, p. 4; Annual Report to the Board of Trustees* , May 27, 1927
1928-29	Rogers Steam Plant and Laundry (designed by Robert & Co.) built with underground connections to the campus buildings, located at SW corner of Doughterty Street and College Place; steam plant building now storage.	*Annual Report to the Board of Trustees* , May 24, 1929, pp. 13-14
1930-31	All electrical and telephone wires put underground; new "white-way" campus lighting system installed; College Avenue widened and re-paved by ASC.	*Treasurer's Report* , 1930-31, p. 3
May-September 1930	Buttrick Hall constructed, Edwards & Sayward architects, named for Dr. Wallace Buttrick. About this time the old gymnasium and Domestic Science (aka Philosophy Hall) buildings were demolished.	CIC, *Historic Campus Architecture Project;* McNair, *Lest* , pp. 80-81

Date	Item Description	Source Information
Summer 1935	Aerial photos shows for first time the iron braces for the two south chimneys on **RSH**. West Lawn Cottage demolished; McCain Library under construction.	*The Silhouette* , 1936, p. 16; aerial photo taken summer of 1935
1935-36	New library constructed, Edwards & Sayward architects, named for Andrew Carnegie; old library remodeled into Murphey Candler Building as a student center, popularly called "The Hub"	CIC, *Historic Campus Architecture Project* ; McNair, *Lest* , pp. 88; McCain, *Story* , p. 46
1936	**RSH** Lobby has gorgeous new furniture and gold draperies; *the* place on campus for dates!	*Alumnae Quarterly* , November 1936, p. 11
1937	**RSH** is for upperclassmen. Three first-story wings are for the dining hall (south), chapel (east), and music and dramatics studios (west).	*Alumnae Quarterly* , Spring 1937, p. 9
Summer 1939	Installation of Grinnell Sprinkler System in each of the three large College dormitories (including **RSH**) for fire protection, cost about $35,000.	*Annual Report to Board of Trustees* , June 2, 1939, p. 13
1940	Presser Hall (music hall and chapel) constructed; conflicting sources name Edwards & Sayward or Logan & Williams architects. Gaines Chapel (inside) dedicated 1941. **RSH** chapel to be replaced with 2nd dining hall (this was never done).	So. Candler St.-Agnes Scott College Historic District NR form; CIC, *Historic Campus Architecture Project* ; McCain, *Story* , p. 66
Between 1940-42	**RSH** dining hall painted; doors were brown, but by 1942 doors had been painted white.	*Silhouette* , 1942, p. 54
1943	**RSH** dining hall converted to a cafeteria; dining hall in the White House was closed. In **RSH** dining hall, back wall was torn down, new service counter installed, dishwashing room, food storage room, linen room--all new rooms in the former kitchen. Last room at south end is an office that opened onto a hall that led to the kitchen basement. Basement remodeled to accommodate kitchen and storage rooms. Cafeteria open for breakfast and lunch, but dinner is regular dining hall with food served by student-waiters.	*Alumnae Quarterly* , Nov. 1943, pp. 12-14; *Pres. Report to Board of Trustees* , May 26, 1944, p. 6
1946	All dorm windows and doors weatherstripped (including **RSH**); new stoker for steam plant; new heat constrol system in all the major buildings, leading to a savings in coal.	*Treasurer's Report* , 1946, p. 3
1947	Car line (the trolley) to be replaced by buses.	*Alumnae Quarterly* , Fall 1947, p. 2

Date	Item Description	Source Information
1949-50	Began renovation of **RSH**: put new hardwood floors on top of existing; install new electrical wiring throughout; new plumbing and fixtures; tiling for bathrooms; sound-reducing ceilings; paint the interior. Prior to these changes, freight elevator installed adjacent to the southeast stairwell. With heavier floors and bathrooms, etc., heavy steel beams will be installed to reinforce the original floors--this is likely the time when the bathroom floors were raised. **RSH** was painted (interior and/or exterior?); new furniture and window shades. **RSH** is now "convenient, attractive, and semi-modern".	*Pres. Report to the Board of Trustees* , June 3, 1949, p. 11 and June 2, 1950, pp. 8-9; *Treasurer's Report* , June 2, 1950, p. 3; Electrical drawings by O. V. Scott Electric of Atlanta, March 15, 1949
1950	Letitia Pate Evans Dining Hall constructed on site of Gaines' House, Logan & Williams architects. **RSH** dining hall no longer used for food service.	*Agnes Scott College Bulletin* , Catalogue No. 1955-56, p. 104
After February 9, 1905	Carnegie Library renamed for J. R. McCain upon his retirement as ASC president.	CIC, *Historic Campus Architecture Project*
1949-51	Bradley Observatory constructed; conflicting sources name Frances M. Davies & Associates or Logan & Williams architects.	So. Candler St.-Agnes Scott College Historic District NR form***;*** CIC, *Historic Campus Architecture Project*
July 1, 1951	Dr. Wallace McPherson Alston, pastor of Druid Hills Presbyterian Church, becomes ASC's third president; his mother was ASC alumna.	McCain, *Growth* , p. 19
1951	Campbell Science Hall constructed, named for John Bulow Campbell.	47
1952	Pres. Alston's long-range plans included modernization and renovation of **RSH** (& other buildings), including fire-proof stairs.	McNair, *Lest* , p. 140
1952	White House razed.	McNair, *Lest* , p. 139
1952-53	Hopkins Hall constructed, named for Nannette Hopkins, first Principal then Dean; conflicting sources name Ivey & Crook or Logan & Williams architects; Barge-Thompson, builders.	So. Candler St.-Agnes Scott College Historic District NR form; McCain, *Growth* , pp. 1, 3, 7, 20
1955	Boiler in heating plant converted from coal to gas. **RSH** painted.	*Pres. Report to the Board of Trustees* , June 3, 1955, p. 7
1955-56	Walters Hall constructed, named for Frances Winship Walters, alumna and trustee; built on site of Lowry Science Hall.	McCain, *Growth* , p. 20; McNair, *Lest* , p. 150
1955-56	Extensive renovations planned for **RSH**, Main, & Inman to bring up to standards of the Fire Marshal of GA.	McNair, *Lest* , p. 151

Date	Item Description	Source Information
June-July 1956	Architectural drawings by Ivey & Crook for changes to **RSH**, which included fire safety changes such as installation of fire horns, emergency lighting, a new time clock, additional lighting, and changes to the directions doors opened. Upstairs cafeteria area converted to six offices with central corridor. New south addition planned (but never built). Central stair enclosed, necessitating changes to stair runs and extension of flooring to meet the new stairwell enclosure partitions. On the east wing, a new counter-balanced fire escape was installed, and door were added at the end of the east wings of the 2nd and 3rd floors to provide access to the porch roof and the fire escapes. Men's restroom and coat room were added to the 1st floor lobby. The enclosed west wing stair was installed, and the southwest entrance leading to the new stair had a new door, concrete platform, concrete stairs, and pipe handrail installed. The west fire escape was removed and re-located above the porch on the east wing. On the 2nd and 3rd floors, asbestos-containing Transite was installed behind the dorm room transoms.	Architectural drawings by Ivey and Crook (Atlanta), June-July 1956; *Pres. Report to the Board of Trustees* , July 1, 1957, p. 10
1958	Continuation of alterations to **RSH**. Small utility and refrigerator-stove units added to the kitchens on the 2nd and 3rd floors of **RSH** and Main.	*Pres. Report to the Board of Trustees* , July 1, 1958, p. 11
1959	Washing machines installed in **RSH** and Inman. Carpenter's shop removed from basement of **RSH**, space converted to storage. Renovation of former kitchen to create business offices. Construction of "date parlors" in the east wing recreation room (former chapel). A new south portico entrance added to former kitchen, and the **RSH** parking lot (former clay tennis courts) was paved and landscaped, making a nice entrance to Buttrick Drive. **RSH**'s freight elevator was replaced with a passenger elevator.	*Pres. Report to the Board of Trustees* , July 1, 1959, p. 26; July 1, 1960, pp. 21-22
Summer 1961	Repair and repanting of **RSH**'s exterior.	*Pres. Report to the Board of Trustees* , June 30, 1961, p. 23
1963	Winship Hall constructed, named for George Winship, trustee, Ivey and Crook architects, Barge & Company builders. A 1963 photo of **RSH** shows the kitchen/annex wing had gutters and downspouts (today it has neither).	McNair, *Lest* , pp. 176-77; *Silhouette* , 1963, p. 54

Date	Item Description	Source Information
1964	**RSH** recreation room was to be partitioned to make six additional date parlors; unknown if this was ever done.	*Report of the President* , June 30, 1964, p. 24
1965	Charles A. Dana Fine Arts Building constructed, designed by John Portman of Edwards & Portman, J. A. Jones Construction Co. (Charlotte) builder; built air conditioned. Speech and drama studios move to Dana from **RSH**.	CIC, *Historic Campus Architecture Project;* McNair, *Lest* , p. 184; *Silhouette* , 1966, p. 106
1965-66	Two large rooms in west wing of **RSH** (originally for the literary societies, later for the department of speech and drama) were partitioned and reconditioned to provide offices and meeting areas for major student organizations.	*Report of the President* , June 30, 1965, p. 22
October 1967	New campus plan by Clyde D. Robbins, a Georgia Tech community planner, adopted. Study emphasized land acquisition south and east of campus.	McNair, *Lest* , p. 192
1970	Air conditioning installed in Evans Dining Hall.	McNair, *Lest* , p. 209
1974	New college logo designed; new outdoor lighting (mercury-vapor globes) and signage installed.	McNair, *Lest* , p. 233
1974	Winship and Presser air-conditioned.	McNair, *Lest* , p. 233
1975-76	Exterior cleaning of Buttrick, Presser, and McCain, silicon waterproofing added, major roof repairs on all three.	President's Report, in *Alumnae Quarterly* , Fall 1976, p. 23
1976	Arkhora Associates, Inc., architects, conduct survey and make planning recommendations based on declining enrollment.	McNair, *Lest* , p. 252
1975-76	In the summer of 1976, major roof repairs to Main and **RSH** were completed. In conjunction with the roof project, extensive damage and deterioration of the wood members and structures was found on several of the buildings. NOTE: this is probably when conversion was made from slate to asphalt shingle roofing on **RSH** (1978 dated photo shows asphalt shingle roofing). Brick chimneys repaired on both buildings. **RSH** and the Colonnade were painted.	President's Report in *Alumnae Quarterly* , Summer 1975, p. 17; President's Report, in *Alumnae Quarterly* , Fall 1979, p. 35; ASC Archives report, September 22, 1976
November 24, 1976	Drawings of stairs on the Colonnade and the southeast entrance to **RSH** with new newel posts and railings. Unknown if plans were ever executed.	ASC Archives, drawings dated November 24, 1976
1974-77	McCain Library renovated, expanded, and air-conditioned.	McNair, *Lest* , pp. 248-49
Summer 1977	Renovation of Dana Fine Arts Building, overhaul of heating & AC systems, exterior cleaning.	President Report, p. 25, *Alumnae Quarterly* , Fall 1977

Date	Item Description	Source Information
1973-78	During past 5 years, new wiring & outdoor lighting installed throughout campus; Winship & auditoriums in Presser air conditioned; McCain renovated; Buttrick in process of being renovated; repairs to the roofs of most buildings, although more work to be done.	President's Report in *Alumnae Quarterly* , Fall 1978, p. 30
Summer 1978	*See Sheet 2 of this spreadsheet for list of* ***RSH*** *1978 summer projects. Many were not done until 1985-86 renovations.*	ASC Archives, project list for summer 1978 for RSH
1978-79	Buttrick completely renovated, re-roofed, air-conditioned, new electrical and furnishings, Henry Howard Smith, architect (Atlanta).	McNair, *Lest* , p. 257; CIC, *Historic Campus Architecture Project*
1979-80	Renovation of Inman Hall's lobby & public rooms, re-wired, repainted, new furnishings; Alumnae House new heating & AC. Only air conditioned dorm is Winship.	President's Report in *Alumnae Quarterly* , Fall 1980, p. 25
1981	Complete renovation of Campbell Hall authorized (including air conditioning), Nix, Mann & Associates, architects (Atlanta) hired to draw plans.	McNair, *Lest* , p. 271
May 14, 1982	Ruth Schmidt becomes first female president of ASC.	McNair, *Lest* , p. 285
1984	Board of Trustees adopt campus plan by Spillman Farmer of Bethlehem, PA, to get buildings in shape for 100th year (1989) celebration, including renovation of Inman, **RSH**, Main, infirmary, gym, new swimming pool, playing field, track; improved landscaping.	President's Report in *Alumnae Quarterly* , Spring 1984, p. 4
1985-86	Renovation of **RSH**. **RSH** had 17 single dorm rooms; rest were doubles, triples, or quads. New beds, new floors, oak chests in bedrooms; new furniture in public spaces donated by alumnae. Admissions, college chaplain, director of student activities moved to **RSH**. [CONTINUED ON NEXT ROW]	CIC, *Historic Campus Architecture Project* ; *Alumnae Quarterly* , Fall 1986, p. 29

Date	Item Description	Source Information
1985-86	[CONTINUED FROM PREVIOUS ROW] Architectural drawings by Bailey Associates showing many changes to **RSH**, including addition of portico and stairs to the west side of the kitchen/annex; installation of NE stairwell and removal of the fire escapes. Kitchen/annex basement divided into mechanical, storage, transformer, areas with new gyp board ceiling. Former dining room partitioned to form a central hall with four dorm rooms and two baths on each side of the hall (this was probably never executed). Central lobby has women's restroom added, and a double-door entrance to the east wing installed. East wing's two small SW rooms had exterior entrances sealed, admission office created with a director's office, reception area, and secretaries'area. West wing has four small meeting rooms added to north wall and a kitchen in the NW corner. On the 2nd and 3rd floors, kitchens were complete renovated, closets added to dorm rooms, bathrooms refurbished; storage rooms added near central stairwell; doors added for access to NE stairwell. Second floor balcony has new wood floor and railing installed. New sprinkler heads were installed, new sprinklers added. [CONTINUED ON NEXT ROW]	Bailey Associates architectural drawings, 1985-1986; CIC, *Historic Campus Architecture Project*

Date	Item Description	Source Information
1985-86	[CONTINUED FROM PREVIOUS ROW] The SE stair railings, stairs, landings, and flooring replaced. Wood windows replaced with aluminum. Porch flooring and structural elements replaced. Brick porch foundation repaired and original vent holes infilled. Electrical and plumbing upgraded. Cupolas to be replaced with fiberglass replicas (never done). Wood floors refinished; wood baseboards painted; existing wainscoting refinished. Most plaster walls were to be retained and painted, but walls above wainscoting covered with gyp board and painted. Stairwell walls covered with gyp board and painted. All ceilings lowered and covered with gyp board except bathrooms and corridors, which were to have acoustical tile installed. New fiberglass shingle roofing installed; new downspouts installed. A new door was to be constructed on the west side of the main building at the recess where the south wing begins (never done). The Colonnade floor was made sloped and covered with brick pavers; the stairs were removed and at grade, brick pavers were installed for handicap accessibility. Some new furnishings, carpets with the College Seal motif were designed by Jova/Daniels/Busby with Shaw Carpets of Dalton, GA; first floor public areas painted in an array of different colors.	Bailey Associates architectural drawings, 1985-1986; CIC, *Historic Campus Architecture Project*
1986	Original Carnegie Library (1936), renamed Murphey-Candler Building (aka the Hub) demolished; some architectural features were saved; Ed Daugherty designed landscaping.	*Alumnae Quarterly* , Fall 1986, p. 30
September 1986; October 10, 1986	Labor Day re-opening of Main & **RSH** after year-long renovation. Re-dedication ceremony for Agnes Scott Hall and **RSH** held October 10, 1986.	*Alumnae Quarterly* , Fall 1986, p. 29
1987	Quadrangle renovated and named the George and Irene Woodruff Quadrangle; Gazebo refurbished and moved to the quad.	Sayr & Cozzens, Timeline; *Silhouette* , 1989, p. 16
1988	Robert W. Woodruff Physical Activities Building opens.	*ASC Student Handbook*
1993	Mention made in the Silhouette yearbook about the "air conditioning units" working well in **RSH.**	*Silhouette* , 1993, p. 88
1994	Campus comprehensive computer network installed, included all buildings on campus, including residence halls; admissions and development included.	*Alumnae Quarterly* , Winter 1994, p. 26

Date	Item Description	Source Information
July 1, 1994-1995	Sally Mahoney serves as interim president.	ASC 125 years timeline, www.tiki-toki.com/timeline/
July 29, 1994	South Candler Street/Agnes Scott College Historic District listed in NR; Decatur's first historic district.	National Register Nomination form, Georgia Historic Preservation Division
1995	Mary Brown Bullock become seventh president of ASC and first alumna (1966) to hold the office.	New Georgia Encyclopedia, www.georgiaencyclopedia.org/articles/education/agnes-scott-college
November 2, 1995	Architectural drawings of Nottingham, Brook and Pennington, Inc., for changes to Main and **RSH** to install permanent air conditioning. Some sort of air ventialation was installed in **RSH** and was operational at least for a time. It is now disconnected.	Nottingham, Brook and Pennington, Inc., architectural drawings, November 29, 1995
July 19-August 4, 1996	Olympic Games in Atlanta. The ASC campus facilities were used for practice by a number of countries throughout the Games, and the school hosted receptions for numerous visitors.	*Alumnae Magazine* , Summer-Fall 1996, p. 2
1998-99	Expansion and renovation of Evans Dining Hall.	*ASC Student Handbook*
1999	Master landscape plan by Carol R. Johnson Associates Inc. of Boston implemented. The plan emphasized not only the buildings, but also the abundance and variety of trees on campus. One of the most diverse urban forests in Georgia, the campus has several trees that have been named on the Georgia Landmark and Historic Tree Register.	CIC, *Historic Campus Architecture Project* ; *Alumnae Magazine* , Summer 1999, p. 8
1999	Bucher Scott Gymnasium, which had been renamed Wallace Alston Campus Center, razed to make room for new campus center.	*Alumnae Magazine* , Fall 1999, p. 18
1999	Public Safety moved from **RSH** to the old Development House on South McDonough; Development moved into the **RSH** Conference Room; Publications and Public Relations moved into the old Public Safety office.	*Silhouette* , 1999, p. 3; *Alumnae Magazine* , Summer 1999, p. 1
2000	Expansion and renovation of Bradley Observatory, Delafield Planetarium, Warren Epstein Associates architects.	CIC, *Historic Campus Architecture Project*
2000-01	Wallace M. Alston Campus Center opened; Perry, Dean, Rogers & Partners architects, with architects-of-record Thompson, Ventulett, Stainback and Associates of Atlanta.	*Alumnae Magazine* , Fall 1999, p. 18; http://emsevents.agnesscott.edu/

Date	Item Description	Source Information
1997-2002	Campus Master Plan by Wallace, Roberts & Todd; over 5 years renovated Evans Hall, McCain Library, Bradley Observatory, 3 houses in the residential village; replaced the Alston Campus Center; built the Byers Tennis courts, the Parking Deck/Public Safety Center,the Delafield Planetarium and Science Center.	CIC, *Historic Campus Architecture Project*
2002-03	Mary Brown Bullock Science Center constructed, Shepley, Bulfinch, Richardson and Abbott architects.	CIC, *Historic Campus Architecture Project*
2006	Elizabeth Kiss become eighth president of ASC.	http://www.agnesscott.edu/about/college-leadership/presidents-biography.html
2008	Julian Thompson Smith Chapel constructed.	ASC Celebrating 100 Years
2010	Anna Young Alumnae House first building in Decatur to get LEED certification.	ASC 125 years timeline, www.tiki-toki.com/timeline/

PAINT SAMPLES

REBEKAH SCOTT HALL

Agnes Scott College, Decatur, GA

May 23 – August 8, 2014

Above: 1906 image from the Agnes Scott College Archives showing Rebekah Scott Hall on the Agnes Scott College campus, 141 East College Avenue, Decatur, DeKalb County, Georgia, 30030-3770. The building was designed by Thomas H. Morgan of the Atlanta architectural firm Morgan & Dillon. Construction of the loadbearing brick building began in June 1905. It was dedicated on May 30, 1906, and it housed its first students in September 1906. The ground floor historically housed the dining hall, kitchen, chapel, meeting rooms, and parlors, while the upper two stories were dormitories. Today the dormitories remain. The ground floor now has a central lobby, a reception room, and the college Admissions, Development, and Marketing & Public Relations offices. Below: 07/31/2014 image of the front (north) facade of Rebekah overwhelmed by large trees.

FIELD SUMMARY

As suspected from field visits, it appears that the **exterior trim** of Rebekah Scott Hall has been white or cream colored for all or most of its existence. One anomaly is a sample from the inside of the porch frieze that appears to have a sea green layer next to the substrate. This may be a primer, but it does not appear in any other samples.

It appears that the porch ceiling and front door surround of Rebekah Scott Hall has been white or cream colored for all or most of its existence. The front door was originally painted or stained a dark brown color, but has subsequently been painted with multiple layers of white or cream colors.

The **south cupola** appears to have started out white, then was silver for a while, and then back to white, as it is now.

The **interior trim** of Rebekah was likely a mahogany stain originally, later covered over with a tan layer, and finally the white we see now.

Samples and photographs were taken by Jean Spencer and Laura Drummond in May-July 2014.

E = exterior

I = Interior

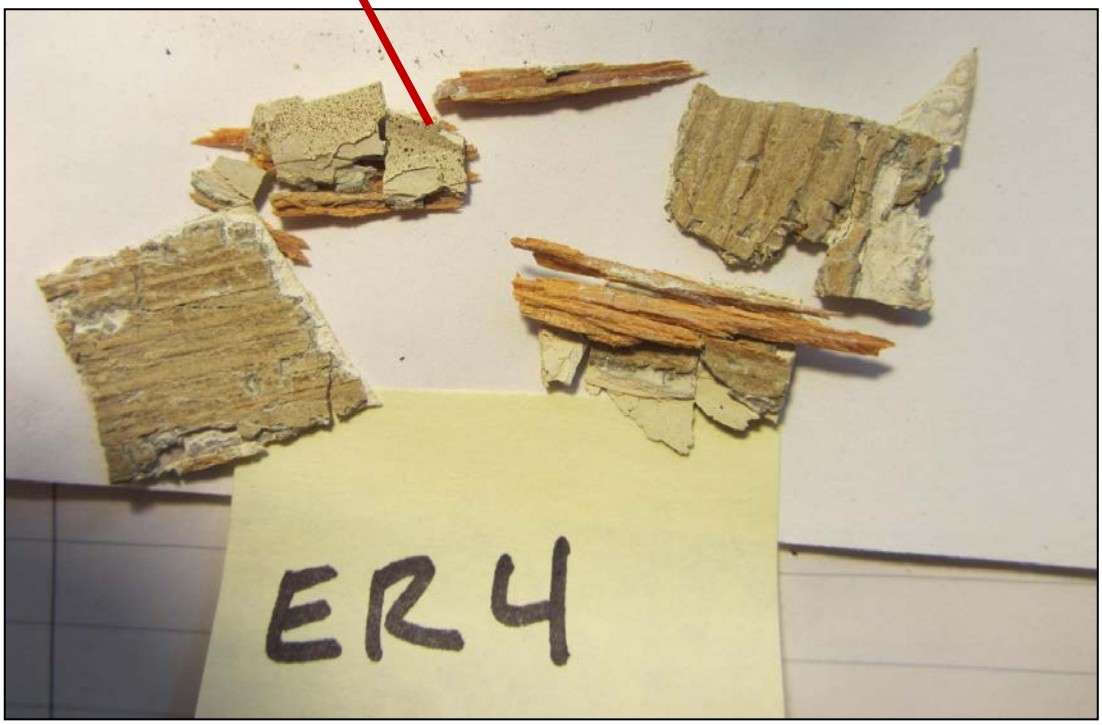
R = Rebekah Scott Hall

ER2

- Collected 06-16-2014 from the frieze above the first column in the row east of the paired columns which are east of the main door on the porch.
- Under the hand lens, there appears to be a coat of sea green next to the wood, followed by several coats of white and one or more coats of the current cream.

ER4

- Collected 05-23-2014 from the south side of the sixth bracket from the southwest corner of the south wing under the soffit of the west side of the south wing.
- Under the hand lens there appear to be several coats of white topped with the cream. The layer closest to the wood appears greyish, which could be discoloration from the wood, primer, dirt, etc.



ER5

- Collected 05-23-2014 from the trim piece under the *cyma reversa* molding directly beneath the gutter above the sixth bracket from the southwest corner of the south wing on the west side of the south wing.
- Under the hand lens there appear to be few layers of white.

ER7

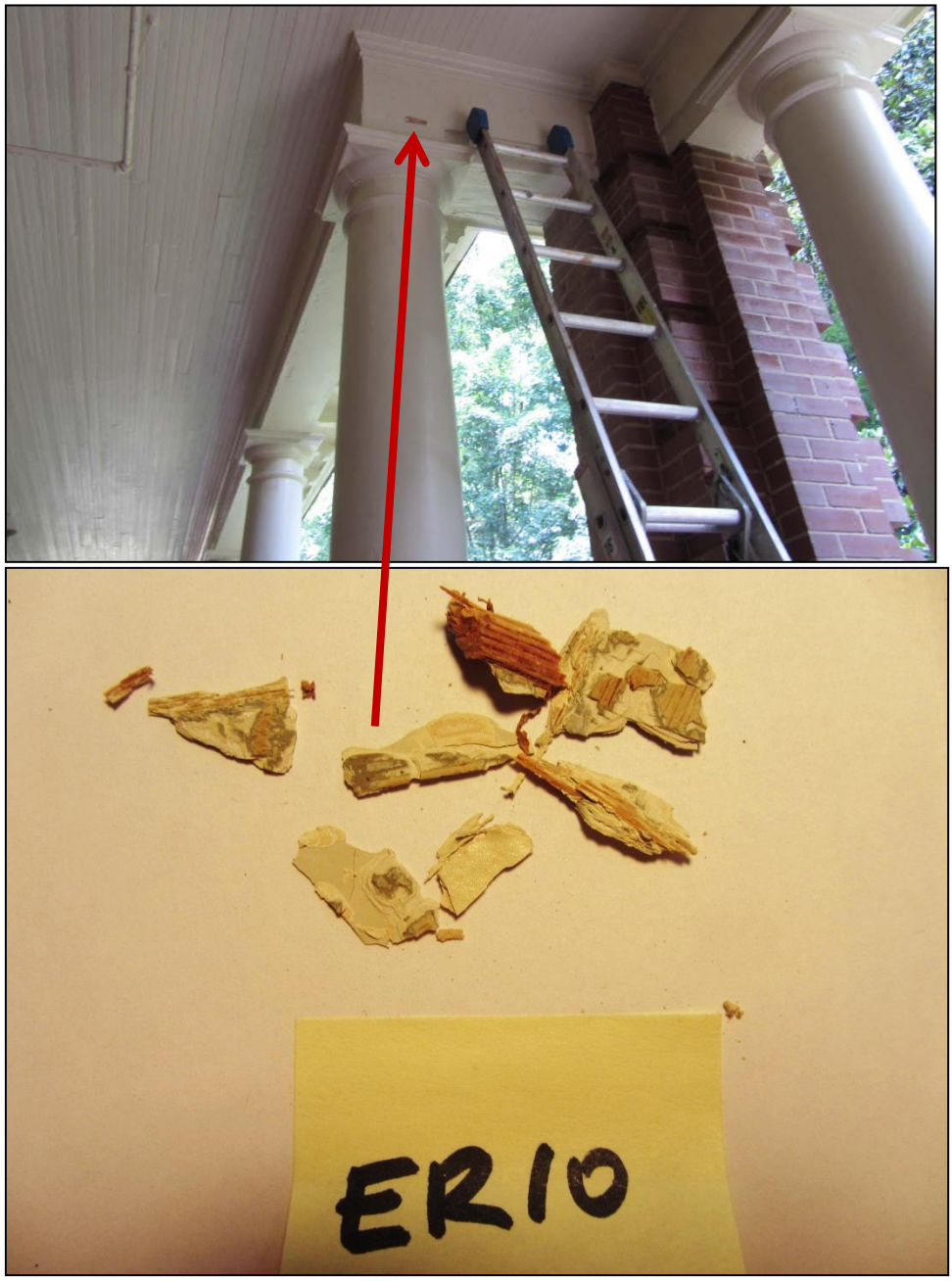
- Collected 05-23-2014 from the soffit just south of the sixth bracket from the southwest corner of the south wing on the west side of the south wing.
- Under the hand lens there appear to be a few layers of white.

ER8

- Collected 05-23-2014 from the south jamb at the south end of the second louver from the bottom of the louvered window beneath the octagonal roof section with the missing cornice on the west side of the south cupola.
- Under the hand lens it appears the cupola was originally white, then at some point was painted silver, and then was returned to white, the current color.

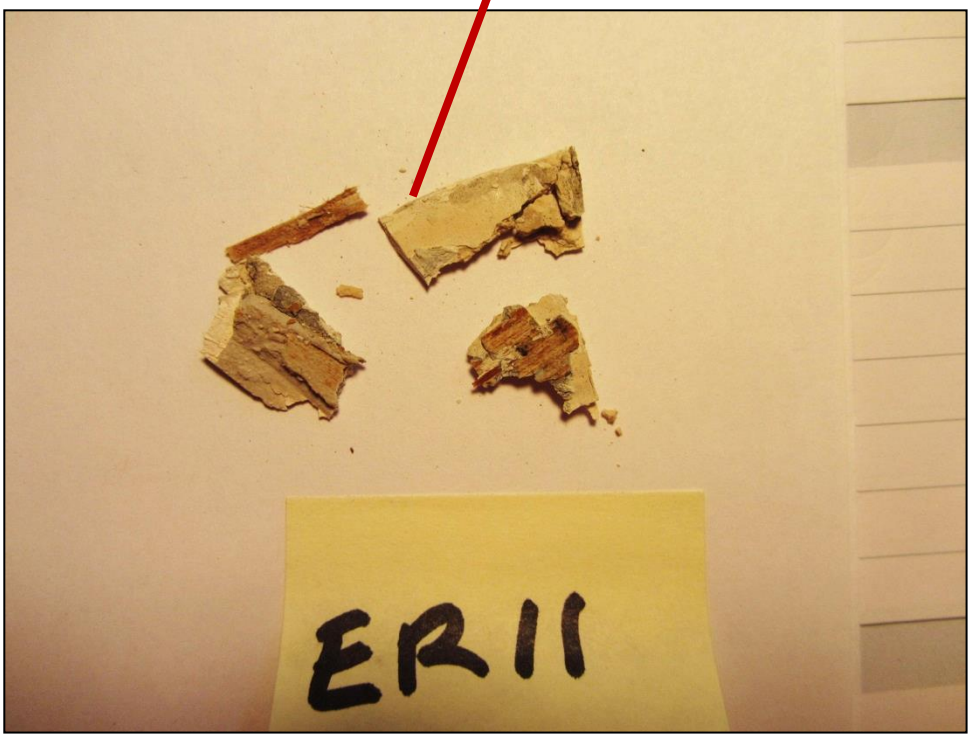
ER10

- Collected 05-14-2014 from the inner frieze of the front (north) porch to the west of the front door above the first column in the row extending west.
- Under the hand lens, this sample exhibited paint layers similar to ER2, with a light grey layer on top of the substrate, followed by a darker sea green, followed by many layers of various shades of white. The first layer of grey is possibly dirt. The sea green is possibly a primer coat, but was found on no other exterior trim samples.



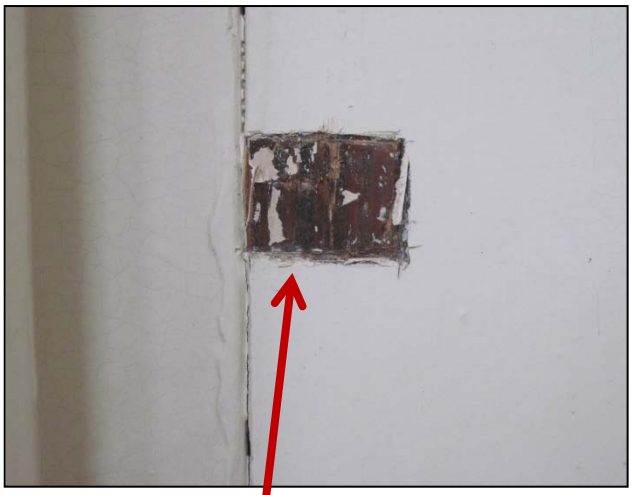
ER11

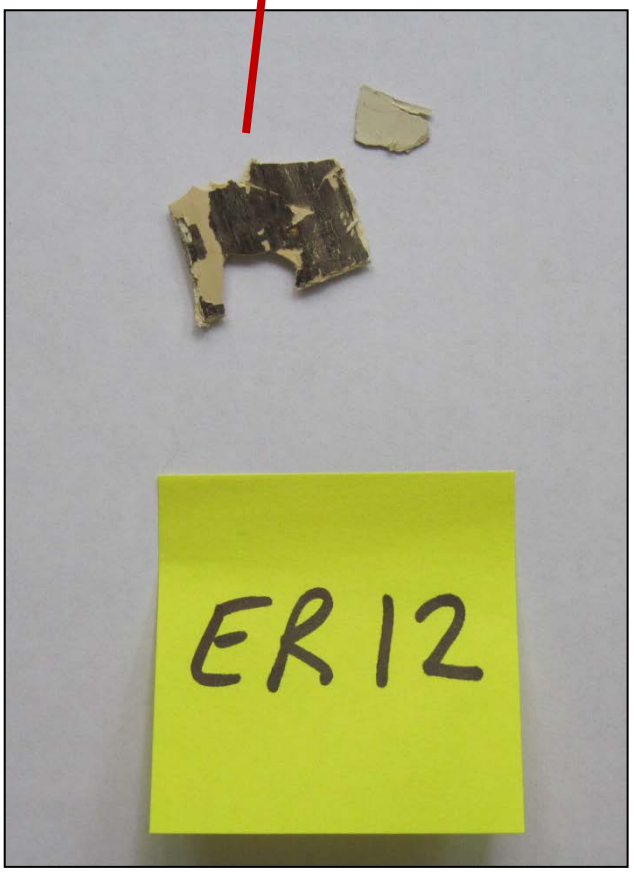
- Collected 05-14-2014 from the column on the porch, west of the front door.
- Under the hand lens, the column appears to be various shades of white, interspersed with cementitious material.



ER12

- Collected 07-31-2014 from the front (north) entrance; from the left (east) door of the double doors.
- Under the hand lens, it appears that the front doors were originally stained dark, then painted shades of cream and white.

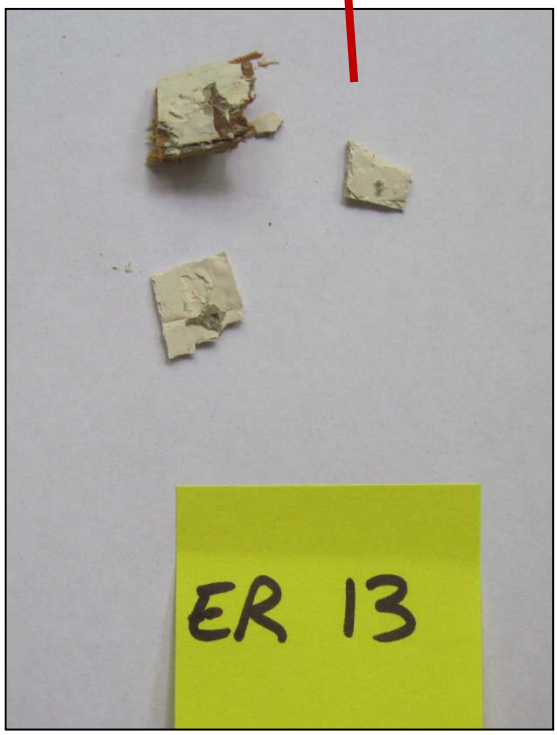




From the 1908 *Silhouette* (the Agnes Scott College yearbook), p. 50. Taken on the front steps of Rebekah Scott Hall. Note dark stained/painted front doors with light-colored columns and sidelights.

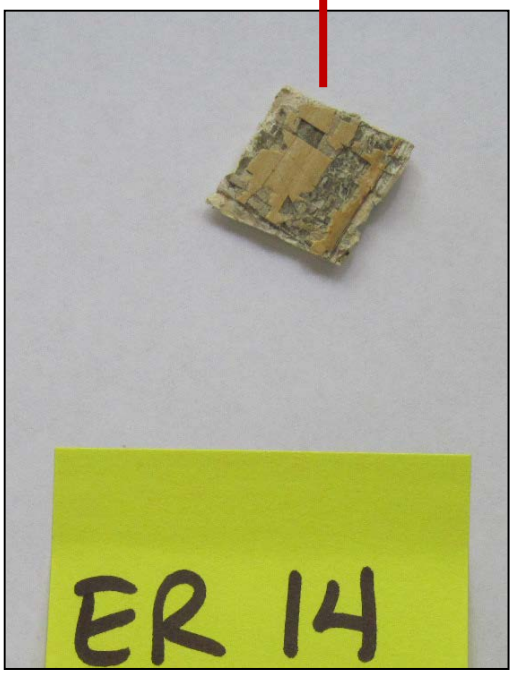
ER13

- Collected 07-31-2014 from the front (north) entrance; from the small Ionic column to the left (east) of the double doors.
- Under the hand lens, it appears that the column was originally white, then gray/silver, and then several shades of white paint.



ER14

- Collected 07-31-2014 from the front (north) verandah, east of the front door. The sample was taken from the porch-side horizontal framing below the first star pattern left (west) of the second column of the east colonnade.
- Under the hand lens, it appears that the balustrade section has been painted several shades of white. The layer closest to the wood appears greyish, which could be discoloration from the wood, primer, dirt, etc.



ER15

- Collected 08-08-2014 from the front (north) entrance; from the right (west) door of the double doors. One sample was taken from beneath the upper door hinge; the second sample was taken from the top left corner of the door's lower panel.
- Under the hand lens, it appears that the front doors were originally stained dark, then painted shades of cream and white.


ER 15

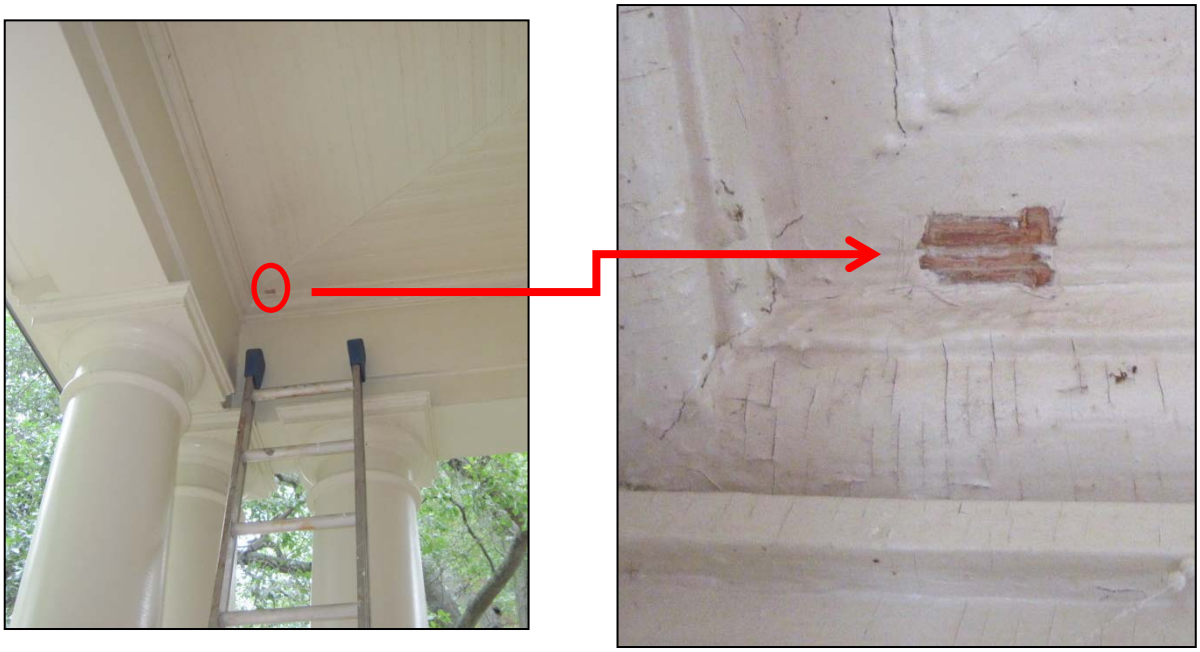
ER16

- Collected 08-08-2014 from the front (north) entrance, from the Ionic columns flanking the double doors. One sample was taken from the left (east) column just beneath the volute of the capital. The second sample was taken from the underside of a curve of the volute of the right (west) column.
- Under the hand lens, it appears that the columns were originally white or cream color, then a grey layer of dirt, followed by several layers of white or cream colored paint.


ER 16

ER17

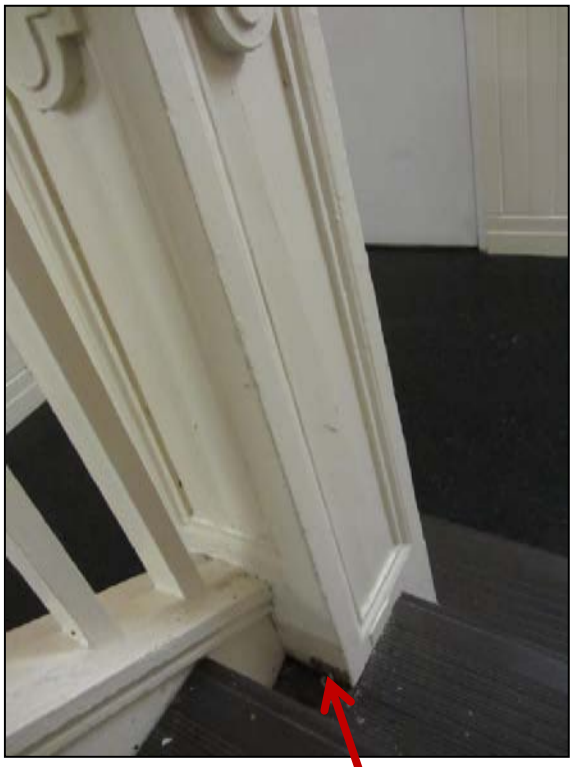
- Collected 08-08-2014 from the ceiling of the front (north) porch. One sample was taken from the west side of the front entrance projection. One sample was taken from the building side of the west colonnade. One sample was taken from the northeast corner of the east colonnade.
- Under the hand lens, it appears that the ceiling has been painted several shades of white or cream. The grey layer is probably dirt. There was no evidence of the sea-green color seen on Sample ER2 from the previous sample set submitted to Welsh Color and Conservation, Inc.




ER 17

IR6

- Collected 06-16-2014 from the base of the shaft of the first floor central stair newel post.
- Under the hand lens, it appears that the newel post was originally stained dark, then painted white. In between white layers is another dark layer that may have come from coating the stair tread, as the sample is from next to the tread.



From the 1937 *Silhouette*, p. 196. The central stair of Rebekah Scott Hall. Note dark stained/painted newel post (with tall lamp/light fixture), rail, runner, and spandrel. Note the lighter colored balusters.

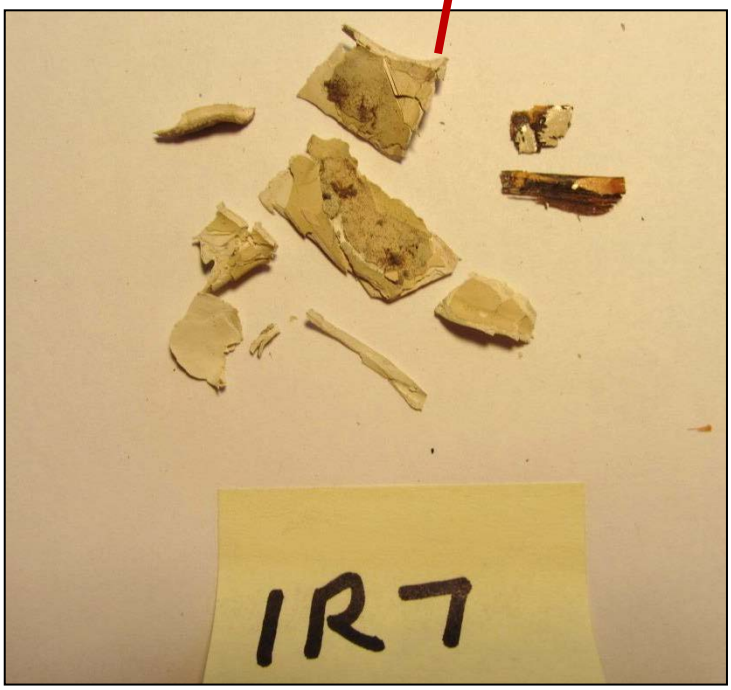
Stair photo taken 06-16-2014.

From the 1951 *Silhouette*, p. 124. From the lobby looking east toward the central stair of Rebekah Scott Hall. Note dark stained/painted handrail. Note the lighter colored balusters, runner, and spandrel. Newel post is not visible.

Cannot replicate angle in 1937 or 1951 photos as the stairway was enclosed in 1956. Above is 07/31/2014 view showing, behind the columns, the modern wall that now encloses the stair.

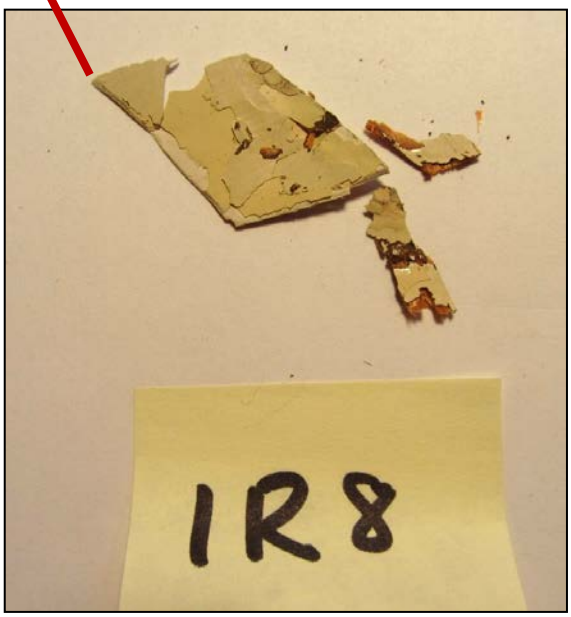
IR7

- Collected 06-16-2014 from the baluster of the first floor central stair.
- Under the hand lens it appears that the balusters were originally dark stained, followed by various shades of white.



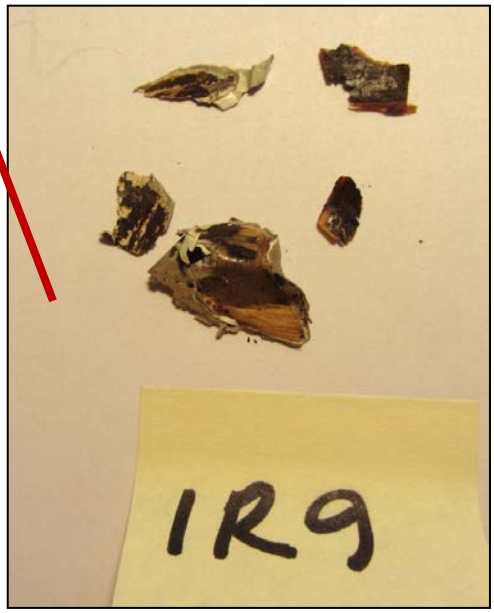
IR8

- Collected 06-16-2014 from the runner by the newel post of the first floor central stair.
- Under the hand lens it appears that the stair runner was originally dark stained, followed by various shades of white.



IR9

- Collected 06-16-2014 from the underside of the cap of the first floor central stair newel post.
- Under the hand lens it appears that the newel cap was originally dark stained, followed by white and the present gray.



Welsh Color & Conservation, Inc.
Analysis of Historic Paints and Wallpapers

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August 20, 2014

Ms. Laura M. Drummond
Atlanta Preservation & Planning Services, LLC
2699 Cosmos Drive NE
Atlanta, GA 30345

Re: Rebekah Scott Hall
Decatur, GA

Dear Ms. Drummond:

We received 17 paint samples from your firm from the Rebekah Scott Hall constructed in 1905-06 on the campus of Agnes Scott College in Decatur. Four of the samples are from the interior staircase and 13 are from the exterior, primarily from the cornice, cupola, front doorway and porch features. We conducted a stereomicroscopical analysis of each sample to determine the layer structure and the original color of the first finish coat.

Our analyses and color evaluation disclose that two of the samples (#'s 7 & 8) from the interior oak staircase exhibit reasonably good evidence of an original finish. There is a black stain that appears to have been applied and then wiped off so that only the open grain of the wood retained the stain. The finish on the wood over the stain appears to be a wax. Above this original finish there are approximately 15 layers of white paint.

On the exterior, the samples from the front door exhibit poor evidence of a black stain similar to that seen on the interior staircase. Evidence of the top finish on those samples is missing, but I suspect that it was varnished originally.

Otherwise, the only samples from the exterior that exhibit very good and identical evidence of the original and later finishes are #'s 10, 14 & 17. Respectively these three samples are from the inner frieze of the front porch, the balustrade of the porch, and the front porch ceiling. There are approximately 22 layers of paint on these samples. The first two layers are the original prime and finish coats, which are a yellowish white, lead-based, oil paint. We matched the original color to the Munsell color system and have provided a sample of the color with this report. The subsequent layers of paint are all whites. The layering sequence for sample #14, the very best sample, is described below. Even though the other samples do not have adequate evidence for us to accurately analyze, the evidence on them suggests that they too were originally painted the same as the best samples.

Sample #: 14 Location: Front porch balustrade, inner face				
Layer/ Coat	Color Name	Color Reference	Type/Gloss (Pb = lead)	Age
1. Prime	Yellowish White		Oil (Pb)	Original
2. Finish	Yellowish White	5 Y 9/1	Oil; Gloss (Pb)	Original
3. Finish	Yellowish White			20th c.
4. Finish	White			20th c.
5. Finish	Grayish White (dirty,oily)			20th c.
6. - 22. Finishes	Whites			20th c.

Feature: Front Porch

Color: Yellowish White
Finish Type: Oil
Reflectance: Gloss

Color sample:

The Munsell Color notation is:

5 Y 9/1

Also, there are times that we document our findings concerning the layers of paint on a sample by preparing a sample in crossection and photographing it. However, when the layers are all whites, a crossection photomicrograph does not serve a significant instructional purpose. Hence, for this project we did not take any to include in this report.

Finally, thank you for your excellent documentation of the samples that your firm took to send us. It proved very helpful in this team effort. I hope that we have the opportunity to collaborate on another project in the future.

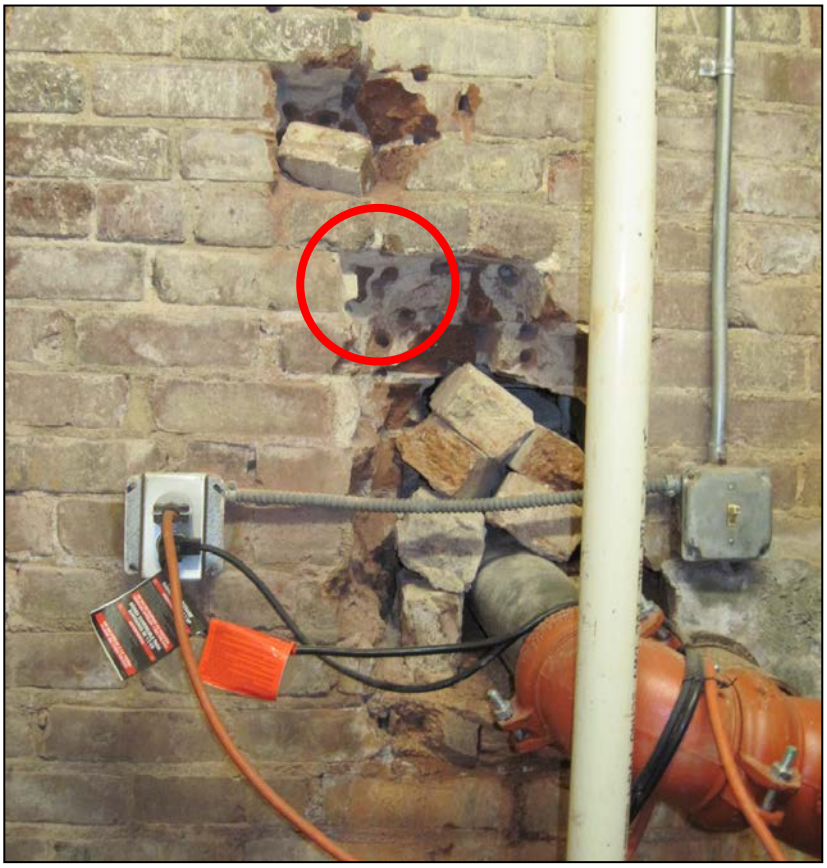
On our website, http://welshcolor.com/matching.html, we provide additional information on color matching new paint. If you have any follow-up questions or need larger Munsell color samples, please call me.

Sincerely,

Frank S. Welsh

Sample 1. Bedding Mortar
Rebekah Scott Hall, Agnes Scott College, Decatur, GA; May 19, 2014

Mortar taken from interior east wall of the historic kitchen basement, in the northeast corner of the basement under the building's southeast stair. Red circles indicate area where sample was taken.



Sample 2. Pointing Mortar
Rebekah Scott Hall, Agnes Scott College, Decatur, GA; May 23, 2014

Mortar taken from exterior west wall of the south ell, in the southwest corner under the eaves on a corner quoin. Red circles indicate area where sample was taken.

Sample 3. Exterior Stucco
Rebekah Scott Hall, Agnes Scott College, Decatur, GA; May 23, 2014

Stucco taken from west facade of the south ell, in the circular panel between the two southernmost first floor windows of the Katherine Woltz Reception Room (original dining hall). Red circles indicate area where sample was taken.

Sample 4. Chimney "Stucco"
Rebekah Scott Hall, Agnes Scott College, Decatur, GA; May 23, 2014

"Stucco" taken from exterior north side of the southwest chimney, under the corbeling. Red circles indicate area where sample was taken.

Mortar Analysis

Rebekah Scott Hall

Agnes Scott College
Decatur, Georgia
July 25, 2014

On Monday, July 21, 2014, David Arbogast, architectural conservator, of Davenport, Iowa received a set of two mortar samples and two stucco samples from Laura M. Drummond, Principal of Atlanta Preservation & Planning Services, LLC in Atlanta, Georgia. They were collected from Rebekah Scott Hall of Agnes Scott College in Decatur, Georgia. The samples were submitted in an effort to determine their original formulas.

The analysis was begun on Tuesday, July 22, utilizing the standard testing procedure developed by E. Blaine Cliver, Regional Historical Architect of the North Atlantic Region of the National Park Service. This relatively simple procedure dissolves the lime and/or cement content of the mortar using a 20% solution of hydrochloric acid. The carbon dioxide released as a result of the reaction displaces water, which is then measured and used to calculate the soluble content of the mortar. The insoluble fines and sand remaining from the reaction are factored into the equation resulting in a final result. In the case of cement samples, the remaining fines are used to calculate the cement content of the mortar. The remaining sand is then carefully sieved and graded by grain size to provide a means of identification of the various sand types encountered.

The first sample was collected from the bedding mortar of the interior east wall of the Annex (original kitchen) basement, in the northeast corner of the basement under the southeast stair. It was light tan in color with visible sand, and was very soft in its consistency. Its reaction was fast and bubbly with a large water displacement, and it filtered rapidly.

All of these factors indicate that the mortar is composed of lime and sand without any Portland cement. The analysis indicated an approximate ratio of two parts of sand to one part of lime, assuming the fines are dirt associated with the sand. The sand sieve analysis revealed fine sand of which virtually all passed the two largest sieves, and less than 5% was caught in the third largest sieve. More than 29% passed through all of the sieves and almost 43% was trapped in the finest sieve.

The second sample was taken from the pointing mortar of the exterior west wall of the south ell, in the southwest corner under the eaves on a corner quoin. It was light tan in color and very soft in consistency. It also had a fast and bubbly reaction but with a somewhat larger water displacement. All of these factors indicate it was also composed of sand and lime without Portland cement. With the larger water displacement, the analysis revealed a ratio of approximately three parts of sand to two parts of lime. The sand sieve analysis revealed very fine sand of which all easily passed the first two sieves with just more than 1% being caught in the third largest sieve. Over 45% passed all of the sieves and almost 41% was trapped in the finest sieve.

The third sample was from the exterior stucco of the west façade of the south ell, in the circular panel between the two southernmost first-floor windows of the Katherine Woltz Reception Room (original dining hall). The sample was approximately half the size of the standard 20 grams, so the results of the analysis must be viewed with this fact in mind. It was similar to the previous samples, being light tan in color with visible sand, but was slightly harder than the previous samples. It also had a fast and bubbly reaction and filtered rapidly, with a water displacement proportionally similar to the second sample. These factors again indicate that it was composed of sand and lime with no Portland cement, with an approximate ratio of five parts of sand to three parts of lime. The sand sieve analysis revealed extremely fine sand of which all easily passed the three largest sieves, and just over 9% was trapped in the fourth-largest sieve. Almost 52% passed all of the sieves and over 39% was trapped in the finest sieve.

The fourth sample was also retrieved from stucco, this time located on the exterior north face of the southwest chimney. This sample was significantly different from the three previous samples, being gray in color with visible layers of dark and light gray, along with visible sand, and was very hard in its consistency. It had a fast and bubbly reaction with a large water displacement, but the reaction was prolonged and produced gelatinous by-products. The sample filtered slowly, taking four days to complete. All of these factors indicate the sample was made of sand and Portland cement with some lime content. It appears to be a type N mortar. The sand sieve analysis revealed very fine sand of which all easily passed the two largest sieves, and just less than 2% was trapped in the third largest sieve. Almost 50% passed all of the sieves and about 34% was trapped in the finest sieve.

Mortar/Plaster/Stucco Analysis Test Sheet

Sample No. 1
Building: Rebekah Scott Hall, Agnes Scott College, Decatur, Georgia
Location: Bedding mortar: taken from the interior east wall of the Annex (original kitchen) basement, in the northeast corner of the basement under the southeast stair
Sample Description: Light tan, visible sand, very soft, fast and bubbly reaction, rapid filtering

Test No. 1 – Soluble Fraction

Data:

1. 185.6 Container A weight
2. 205.6 Container A and sample
3. 760.73 Barometric pressure
4. 25 Temperature (°C)
5. 0.91 Liters of water displaced
6. yellow-green Filtrate color
7. tan Fines color
8. no Hair or fiber ____ type
9. 3.9 Fines and paper weight
10. 2.8 Filter paper weight
11. 199.1 Sand and Container A weight
12. 9.0 cc. of sand
13. 18.6 Weight of graduated cylinder and sand
14. 5.1 Weight of graduated cylinder

Computations:

15. 20.0 Starting weight of sample: No. 2 – No. 1
16. 1.1 Weight of fines: No. 9 – No. 10
17. 13.5 Weight of sand: No. 11 – No. 1
18. 0.66666667 Sand density: No. 12 divided by (No. 13 – No. 14)
19. 5.4 Weight of soluble content: No. 15 – (No. 16 + No. 17)
20. 0.0371486 Mols. Of CO_2: No. 5 x No. 3. x 0.016 divided by (No. 4 + 273.16 C.)
21. 3.71 Gram weight of $CaCO_3$: 100 x No. 20
22. 1.69 Gram weight of $Ca(OH)_2$: No. 19 – No. 21
23. 0.0227721 Mols. of $Ca(OH)_2$: No. 22 divided by 74
24. 4.43 Gram total weight of $Ca(OH)_2$: 74 x (No. 20 + No. 23)
25. 1.63 Gram weight CO_2: No. 20 x 44
26. 2.64 Gram weight total possible CO_2: 44 x (No. 20 + No. 23)
27. 61.74 %CO_2 gain: No. 25 divided by No. 26

Conclusions:

28. 18.37 Gram weight of sample: No. 15 – No. 25
29. 5.99 Fine parts/volume: No. 16 divided by No. 28
30. 46.99 Sand parts/volume: (No. 17 divided by No. 28) x No. 18
31. 26.53 Lime parts/volume: (No. 24 divided by No. 28) x 1.1

Cement (if present)

32. _____ Portland cement parts/volume: (No. 16 divided by No. 28) x 0.78
33. _____ Natural cement parts/volume: (No. 16 divided by No. 28) x 0.86
34. _____ Lime with cement parts/volume: (No. 16 x 0.2) divided by No. 28 x 1.1

Test No. 2 – Sand Sieve Analysis

Sieve	Sieve w/ sand weight	Sieve weight	Sand weight	Sand ratio
No. 4	158.4	158.4	0.0	0.00
No. 8	140.3	140.2	0.1	0.53
No. 16	133.6	132.7	0.9	4.79
No. 30	127.9	123.7	4.3	22.87
No. 50	121.9	113.9	8.0	42.55
Base	84.1	78.6	5.5	29.25

Mortar/Plaster/Stucco Analysis Test Sheet

Sample No. 2
Building: Rebekah Scott Hall, Agnes Scott College, Decatur, Georgia
Location: Pointing mortar: Exterior west wall of the south ell, in the southwest corner under the eaves on a corner quoin
Sample Description: Light tan, very soft, fast and foamy reaction, rapid filtering

Test No. 1 – Soluble Fraction

Data:

1. 192.7 Container A weight
2. 212.7 Container A and sample
3. 760.48 Barometric pressure
4. 25 Temperature (°C)
5. 1.10 Liters of water displaced
6. yellow-green Filtrate color
7. tan Fines color
8. no Hair or fiber ____ type
9. 3.5 Fines and paper weight
10. 2.7 Filter paper weight
11. 205.2 Sand and Container A weight
12. 8.4 cc. of sand
13. 17.6 Weight of graduated cylinder and sand
14. 5.1 Weight of graduated cylinder

Computations:

15. 20.0 Starting weight of sample: No. 2 – No. 1
16. 0.8 Weight of fines: No. 9 – No. 10
17. 12.5 Weight of sand: No. 11 – No. 1
18. 0.672 Sand density: No. 12 divided by (No. 13 – No. 14)
19. 6.7 Weight of soluble content: No. 15 – (No. 16 + No. 17)
20. 0.0448901 Mols. Of CO_2: No. 5 x No. 3. x 0.016 divided by (No. 4 + 273.16 C.)
21. 4.49 Gram weight of $CaCO_3$: 100 x No. 20
22. 2.21 Gram weight of $Ca(OH)_2$: No. 19 – No. 21
23. 0.0298782 Mols. of $Ca(OH)_2$: No. 22 divided by 74
24. 5.53 Gram total weight of $Ca(OH)_2$: 74 x (No. 20 + No. 23)
25. 1.98 Gram weight CO_2: No. 20 x 44
26. 3.29 Gram weight total possible CO_2: 44 x (No. 20 + No. 23)
27. 60.18 %CO_2 gain: No. 25 divided by No. 26

Conclusions:

28. 18.02 Gram weight of sample: No. 15 – No. 25
29. 4.44 Fine parts/volume: No. 16 divided by No. 28
30. 46.61 Sand parts/volume: (No. 17 divided by No. 28) x No. 18
31. 33.76 Lime parts/volume: (No. 24 divided by No. 28) x 1.1

Cement (if present)

32. _____ Portland cement parts/volume: (No. 16 divided by No. 28) x 0.78
33. _____ Natural cement parts/volume: (No. 16 divided by No. 28) x 0.86
34. _____ Lime with cement parts/volume: (No. 16 x 0.2) divided by No. 28 x 1.1

Test No. 2 – Sand Sieve Analysis

Sieve	Sieve w/ sand weight	Sieve weight	Sand weight	Sand ratio
No. 4	158.4	158.4	0.0	0.00
No. 8	140.2	140.2	0.0	0.00
No. 16	132.9	132.7	0.2	1.33
No. 30	125.6	123.7	1.9	12.67
No. 50	121.0	113.9	6.1	40.67
Base	85.4	78.6	6.8	45.33

Mortar/Plaster/Stucco Analysis Test Sheet

Sample No. 3
Building: Rebekah Scott Hall, Agnes Scott College, Decatur, Georgia
Location: Exterior stucco: west façade, south ell, circular panel between the two southernmost first-floor windows of the Katherine Woltz Reception Room (original dining hall)
Sample Description: Light tan, visible sand, moderately soft, fast and bubbly reaction, rapid filtering

Test No. 1 – Soluble Fraction

Data:

1. 189.7 Container A weight
2. 200.3 Container A and sample
3. 759.97 Barometric pressure
4. 25 Temperature (°C)
5. 0.52 Liters of water displaced
6. yellow-green Filtrate color
7. tan Fines color
8. no Hair or fiber ____ type
9. 3.3 Fines and paper weight
10. 2.7 Filter paper weight
11. 196.4 Sand and Container A weight
12. 4.5 cc. of sand
13. 11.8 Weight of graduated cylinder and sand
14. 5.1 Weight of graduated cylinder

Computations:

15. 10.6 Starting weight of sample: No. 2 – No. 1
16. 0.6 Weight of fines: No. 9 – No. 10
17. 6.7 Weight of sand: No. 11 – No. 1
18. 0.67164179 Sand density: No. 12 divided by (No. 13 – No. 14)
19. 3.3 Weight of soluble content: No. 15 – (No. 16 + No. 17)
20. 0.0212065 Mols. Of CO_2: No. 5 x No. 3. x 0.016 divided by (No. 4 + 273.16 C.)
21. 2.12 Gram weight of $CaCO_3$: 100 x No. 20
22. 1.18 Gram weight of $Ca(OH)_2$: No. 19 – No. 21
23. 0.0159371 Mols. of $Ca(OH)_2$: No. 22 divided by 74
24. 2.74 Gram total weight of $Ca(OH)_2$: 74 x (No. 20 + No. 23)
25. 0.93 Gram weight CO_2: No. 20 x 44
26. 1.63 Gram weight total possible CO_2: 44 x (No. 20 + No. 23)
27. 56.05 %CO_2 gain: No. 25 divided by No. 26

Conclusions:

28. 9.67 Gram weight of sample: No. 15 – No. 25
29. 6.20 Fine parts/volume: No. 16 divided by No. 28
30. 46.54 Sand parts/volume: (No. 17 divided by No. 28) x No. 18
31. 31.17 Lime parts/volume: (No. 24 divided by No. 28) x 1.1

Cement (if present)

32. _____ Portland cement parts/volume: (No. 16 divided by No. 28) x 0.78
33. _____ Natural cement parts/volume: (No. 16 divided by No. 28) x 0.86
34. _____ Lime with cement parts/volume: (No. 16 x 0.2) divided by No. 28 x 1.1

Test No. 2 – Sand Sieve Analysis

Sieve	Sieve w/ sand weight	Sieve weight	Sand weight	Sand ratio
No. 4	158.4	158.4	0.0	0.00
No. 8	140.2	140.2	0.0	0.00
No. 16	132.7	132.7	0.0	0.00
No. 30	124.2	123.6	0.6	9.09
No. 50	116.5	113.9	2.6	39.39
Base	82.0	78.6	3.4	51.52

Mortar/Plaster/Stucco Analysis Test Sheet

Sample No. 4
Building: Rebekah Scott Hall, Agnes Scott College, Decatur, Georgia
Location: Chimney stucco, exterior north face of southwest chimney, under the corbeling
Sample Description: Gray with thin layers having alternating darker and lighter gray colors, visible sand, very hard, fast and bubbly reaction followed by prolonged reaction, gelatinous products, slow filtering

Test No. 1 – Soluble Fraction

Data:

1. 192.3 Container A weight
2. 212.3 Container A and sample
3. 760.48 Barometric pressure
4. 25 Temperature (°C)
5. 0.92 Liters of water displaced
6. yellow-green Filtrate color
7. off-white Fines color
8. no Hair or fiber ____ type
9. 8.5 Fines and paper weight
10. 3.7 Filter paper weight
11. 199.4 Sand and Container A weight
12. 6.5 cc. of sand
13. 12.2 Weight of graduated cylinder and sand
14. 5.1 Weight of graduated cylinder

Computations:

15. 20.0 Starting weight of sample: No. 2 – No. 1
16. 4.8 Weight of fines: No. 9 – No. 10
17. 7.1 Weight of sand: No. 11 – No. 1
18. 0.91549295 Sand density: No. 12 divided by (No. 13 – No. 14)
19. 8.1 Weight of soluble content: No. 15 – (No. 16 + No. 17)
20. 0.0375444 Mols. Of CO_2: No. 5 x No. 3. x 0.016 divided by (No. 4 + 273.16 C.)
21. 3.75 Gram weight of $CaCO_3$: 100 x No. 20
22. 4.35 Gram weight of $Ca(OH)_2$: No. 19 – No. 21
23. 0.0587237 Mols. of $Ca(OH)_2$: No. 22 divided by 74
24. 7.12 Gram total weight of $Ca(OH)_2$: 74 x (No. 20 + No. 23)
25. 1.65 Gram weight CO_2: No. 20 x 44
26. 4.24 Gram weight total possible CO_2: 44 x (No. 20 + No. 23)
27. 38.92 %CO_2 gain: No. 25 divided by No. 26

Conclusions:

28. 18.35 Gram weight of sample: No. 15 – No. 25
29. 26.16 Fine parts/volume: No. 16 divided by No. 28
30. 35.42 Sand parts/volume: (No. 17 divided by No. 28) x No. 18
31. 42.68 Lime parts/volume: (No. 24 divided by No. 28) x 1.1

Cement (if present)

32. 20.40 Portland cement parts/volume: (No. 16 divided by No. 28) x 0.78
33. ____ Natural cement parts/volume: (No. 16 divided by No. 28) x 0.86
34. 5.75 Lime with cement parts/volume: (No. 16 x 0.2) divided by No. 28 x 1.1

Test No. 2 – Sand Sieve Analysis

Sieve	Sieve w/ sand weight	Sieve weight	Sand weight	Sand ratio
No. 4	158.4	158.4	0.0	0.00
No. 8	140.2	140.2	0.0	0.00
No. 16	133.1	132.7	0.4	1.88
No. 30	126.7	123.6	3.1	14.55
No. 50	121.1	113.9	7.2	33.80
Base	89.2	78.6	10.6	49.77