Section 10

Augusta State Facilities Master Plan

August, 2001

Prepared by SMRT Inc.

10. Stone – Supporting Investigations

Case Study

Section 1: Introduction

Section 2: History

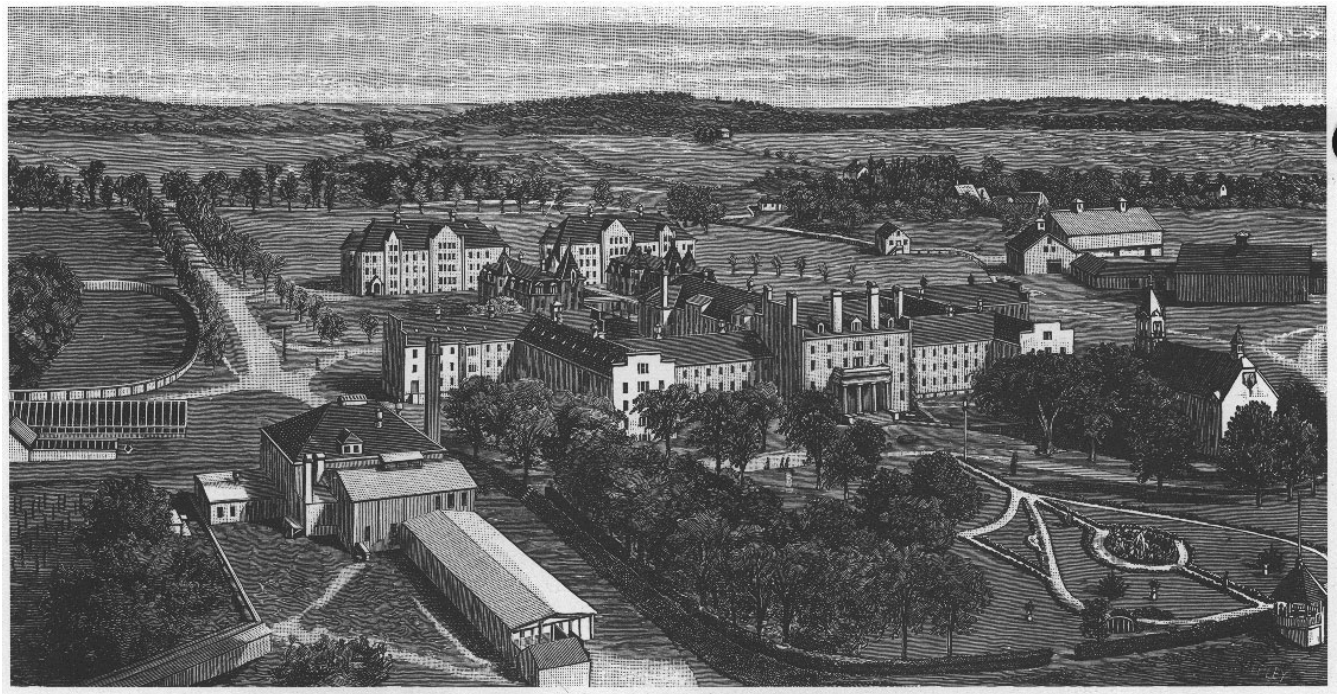
Section 3: Existing Conditions

Section 4: General Recommendations

Section 5: Proposed Space Plans

Tab 6: Appendix 1 – National Register Nomination

Tab 7: Appendix 2 – Augusta Building Inventory Forms



Turn of the century view of the AMHI campus with the Stone Complex at center right.

Introduction

The building group known as the Stone Building is actually comprised of six different connected structures built between 1836 and 1876, with alterations of varying levels of significance being made right up to the present day. The imposing three- and four-story structures enclose about 262,000 square feet of space. These buildings make up the original core of the Augusta Mental Health Institute. Much of the space within them is still used for psychiatric treament.

The Stone Building is significant both for its architecture and its association with Maine history and with the different psychiatric treatment methodologies that have come into use and then been displaced by newer thinking. In recognition of this, the Stone Building and several of the other older AMHI buildings have been listed on the National Register of Historic Places as the Augusta Mental Health Institute Historic District. This district is listed in the Register at the State level of significance.

Over the last several years, SMRT has examined the buildings of AMHI as part of several different master

planning and building evaluation projects. The most important of these are the Moving Maine Forward effort, which included a complete inventory of all of State Government's real estate holdings in the Augusta area, and the Augusta State Facilities Master Plan, completed in March of 2001, which took advantage of information compiled previously to look at concepts for the future State use of the AMHI campus and its buildings.

The Stone Building emerged as one of the key elements of the Master Plan. With the completion of a replacement psychiatric treatment facility directly to the south scheduled for fall of 2003, the Stone Building will be vacated. The Master Planning Committee (MPC) recognized from early in the planning process that the re-use of such a large and significant building presented an important challenge and a great opportunity. The committee concluded that the rehabilitation and re-use of the Stone Building was one of the highest priorities to result from the master planning process.

The master planning effort focused on how to make the best use of the State's real estate. A major focus was to determine how much office and support space the State would need over the next ten years, and to see whether that space could be provided in buildings already owned by the State, without the need for substantial new construction or leased space. The MPC concluded that with the construction of one significant new building on the west side of the river and the re-use of the significant, historic AMHI buildings on the east side, State Government could consolidate all of its Augusta-area employees in State-owned buildings on the East (AMHI) and West (Capitol Complex) campuses. The Stone Building, capable of housing close to 1,000 people while providing ample amenities such as conference and training facilities and a cafeteria for the entire campus, will play a major role in this consolidation effort.

Mid-19th century artist's rendering of the Stone Building.

As part of the master plan, SMRT was asked to study the Stone Building to determine whether it could be successfully re-used as a major state office facility. To that end, SMRT compiled all of the information collected in previous planning efforts, including drawings, existing condition architectural and engineering reports, the Moving Maine Forward inventory information, and historical information such as the National Register nomination and historic

photographs. New information consists of a general architectural history of AMHI and a specific architectural analysis of the Stone Building, written by architectural historian Roger Reed for the Maine Historic Preservation Commission (this material is provided here in draft form – it will be the basis for a book on AMHI), as well as floor plans showing a proposed State office use of the entire building group. This last component represents the bulk of our work on the Stone Building under the auspices of the master plan project. SMRT prepared existing condition floor plans, which are included in this report. Then we looked at several space plans to determine the best way to use the various elements of the building for typical State government office purposes. The result is two prototypical plans for the rehabilitation, expansion and continued use of the Stone Building, indicating that the building can be functionally and appropriately adapted for another 100 years of use.

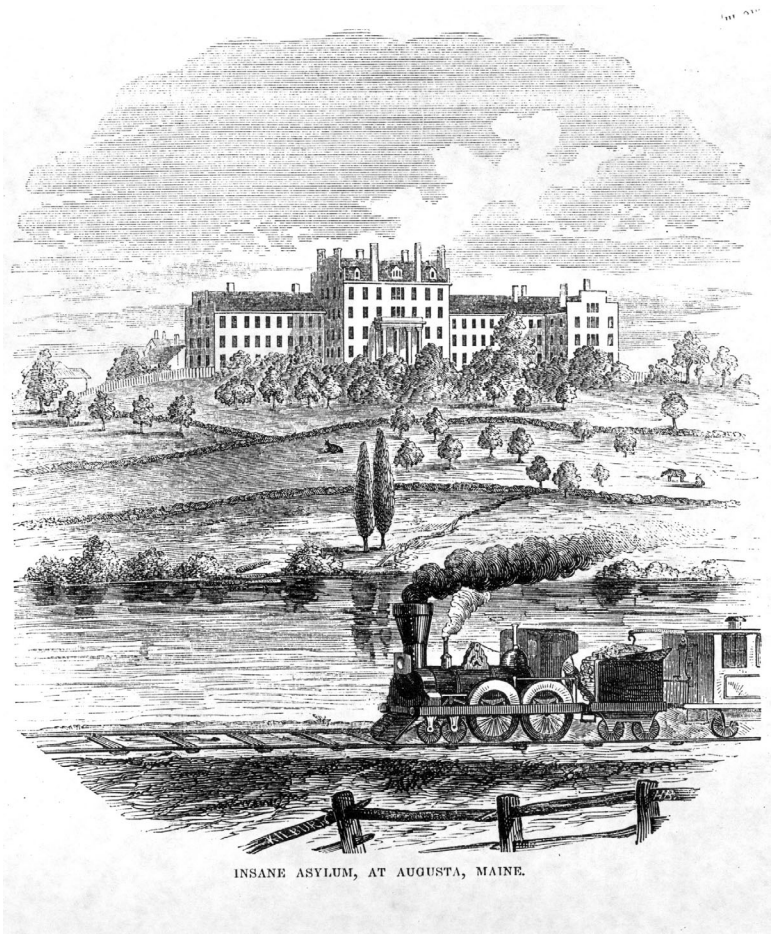
It is our belief that the Stone Building, if treated to a restoration of its exterior elements, a creative adaptive re-use of its interior spaces, and a complete upgrade of its building systems and infrastructure, can become a modern, comfortable, safe, healthy, efficient, and functional office building for Maine State Government, in the same manner that the State House, the Burton Cross State Office Building, and the Tyson Building have been successfully rehabilitated. There is no question that to do so will take creativity, knowledge of historic building materials and systems, and financial resources. To restore the exterior, for example, which is constructed of high quality materials and methods that are expensive to use on new construction today, such as granite and slate, will require a major financial commitment. On the other hand, the building has served its purpose well for over 160 years with little in the way of major repairs to its exterior. To repair the granite walls, address the hundreds of windows, and bring the slate roofs back to original condition will be expensive, but will result in a building that will last another 100+ years without another major investment.

Modern view of the Stone Complex, Administration Building.

The order of magnitude of the project will be similar to that of the State Office Building and the State House. The Stone Building is about 20% larger than the State Office Building. The State Office Building has the capacity to house 700 employees, the Stone Building will be able to house between 700 and 1,000 people. The Stone Building will cost more

per square foot to renovate because of the way it is built and the materials of which it is built, and the fact that it is an historic building. However, it should still be in the same cost range or slightly less than new construction, and certainly less than new construction of the same quality as the Stone Building original construction.

The public, and public servants, are asking today that new public buildings be built to last 75 or 100 years. The State Office Building was in use for about 50 years before needing a major overhaul. The Stone Building will have served us for over 160 years without extensive renovation. This speaks to its original quality of construction and good basic maintenance over much of its life. It is the hope of the Master Planning Committee that those responsible for the stewardship of the State's buildings will recognize the value of the Stone Building, and make the necessary commitment to the preservation and continued use of this landmark structure.



An early artist's view of the Kennebec River, with the original Stone Building in the background.

History

The following pages contain a brief general history of the architecture of the Augusta Mental Health Institute, written by architectural historian Roger Reed. Mr. Reed was on the staff of the Maine Historic Preservation Commission for several years and has written extensively on the history of Maine and Augusta-area architecture, including the Kennebec Arsenal. He was commissioned by the MHPC and SMRT to prepare this material for an upcoming book on AMHI architecture to be published by the MHPC and the Kennebec Historical Society.

Existing Conditions

The Administration Building as it appears today. Stone South is at right.

Administration Building

Location: AMHI Central Campus
Inventory number: AUG061
Gross area: 26,550 sf
Primary occupant/use: MHMR&SA/AMHI

The Administration Building, part of the Stone Building Complex, houses AMHI administrative offices. It has been the "front door" of AMHI since its construction in 1839, and is one of the most important of the AMHI buildings. Designed by architect and builder John D. Lord of Hallowell, it was, before expansion, a simple Greek Revival symmetrical building consisting of a four-story central block flanked by a three-story wing to either side. Using today's nomenclature, the Administration Building is actually only the center portion of the original Maine Insane Asylum building. The two flanking wings are now considered parts of Stone North and Stone South (see descriptions below). A two-story portico dignified the main entrance. There were 200 rooms in the completed building, to house 120 patients. The buildings were constructed with massive Hallowell granite block exterior walls, backed up by a separate brick wall. Interior partitions were brick, with floors of southern yellow pine. There is little remaining evidence of the original interior, which has been subject to many renovations almost from the beginning of the building's life. Major wings were added starting in 1846, resulting in internal changes to the original building as well as new construction. A severe fire that gutted the southern half of the building in 1850 led to another round of renovations.

The exterior is little changed from the original with two major exceptions. The first change was the addition of a granite porte cochere to the front portico, designed by George M. Coombs as part of an extensive modernization of the entire Stone complex in 1892. The second is an elevator penthouse that extends above the original roof on the facade (west elevation), dating from 1956.

Even though there is little trace of the original interior of the Administration Building, there are still some remarkable interior features dating from the most extensive renovation of the building that began in 1892 and continued

until 1897. A fine oak staircase constructed in 1893 connects the four floors and attic level with tall paneled wainscot, newel posts and banisters, and includes a second floor window seat. Many rooms that were remodeled at this time, including first floor waiting rooms, second story administrative offices, the third floor Superintendent's Office, and fourth floor lodging rooms, contain elaborate wainscot and paneling, parquet floors, marble fireplace surrounds, mirrors, coffered ceilings with oak beams, and polychromatic embossed decorations on the upper walls. There are two second floor rooms and several fourth floor rooms that are notable for retaining Greek Revival interior details from 1851-52 post-fire renovations.

The Administration Building portion of the Stone Complex is in good condition and is remarkable for having retained so much interior and exterior detail in the face of 160 years of dramatic changes at the institution. Its commanding presence on the hillside above the river, its visibility from the Capitol Complex, its condition and quality of construction, and its historic and architectural significance lend credence to the concept of adapting the Administration Building and the rest of the Stone Complex for another century of usefulness.

Structural (includes Stone North and Stone South Buildings)

The gable roof framing consisted of 3 "x5 1/4" wood joists spaced at 19 inches on center. The joists supported a 7/8" thick tongue and groove wood deck. The joists were supported on 5 1/2"x10" wood beams spanning between timber frames. In some areas, the joists had been cut or removed. Many of the connections between the columns and beams had separated. Some of the columns were shimmed with brick at the bottom. Some areas of the roof deck showed signs of past water intrusion.

The roof structures of all the Stone Complex buildings are similar.

The center area of the building was being reinforced at the time of the inspection in anticipation of a reroofing project. No further inspection of this area was performed.

The floor framing consisted of a series of steel beam supporting a flat arch terra cotta brick floor topped with 2 to 4 inches of concrete. The floor system was supported by interior and exterior brick bearing walls. In most areas, the floor and walls were concealed with finishes. The building currently houses the mental health facility and appears to be adequately supporting this use.

In discussions with maintenance staff and construction personnel, the condition of the floor and brick vary from area to area based on the date of construction and the quality of the workmanship. A contingency should be set aside as part of future construction costs in anticipation of hidden defects.

Much of the infrastructure of the complex utilizes basement tunnels such as this.

Mechanical

The building is heated by steam fed cast iron radiation. There is no fresh air ventilation except for two fan units installed in 1960 to supply untempered outside air to four interior offices on the second floor. Window air conditioners are used in some rooms.

This building has inadequate outdoor air ventilation and areas of poor temperature control.

Electrical

The building has a 200 A main distribution panel fed from a two-pole 200 A breaker in a 600 A distribution panel in the Central Building electrical room. The main distribution panel is fed from a 100 KVA, 120/240 V, single phase transformer in the Central Building vault. The 200 A main distribution panel in the Administration Building feeds lighting and receptacle panelboards located on each floor of the building. The building is currently used as support space for AMHI.

The distribution panel has sufficient capacity for the current building loads, but if air conditioning or other mechanical equipment is added the panel will not have the capacity to handle the load. The panelboards for lighting and receptacles are old but appear to be in fair condition.

Stone Northeast showing sun porch addition.

Stone North

Location: AMHI Central Campus
Inventory number: AUG063
Gross area: 87,200 sf
Primary occupant/use: MHMR&SA/AMHI

One of the wings of the Stone Complex and attached to the Administration Building, the first wing of what is now called Stone North was the original female patient wing constructed along with the Administration Building according to John Lord's 1836 plans. The second extension was erected to the designs of Henry Sawyer, starting in 1850 and completed in 1855, along with a

A somewhat modernized staircase in Stone North.

complete renovation of the original women's wing of the Administration Building. Another wing, and the last extension of the Stone Complex to the north, was designed by Francis Fassett and completed in 1866. The interior spaces have been continuously renovated for general upgrading and to reflect changes in treatment plans over the years, but the exteriors have changed little. The most extensive interior work occurred from 1903 - 1914 during the George Coombs-directed hospital-wide renovations extending from 1892 to 1916. Although mechanical and electrical systems, clinical casework, stairs and elevators have all been upgraded through the years, the basic floor plans have changed little, in part due to the solidity of the original construction.

Structural
(See Administration Building)

Roof ventilators such as these on the roof of Stone South were important parts of the original building ventilation systems.

Mechanical
Each of the three Units are heated and ventilated through separate mechanical systems installed in 1973. Located in the basement of each Unit is: a steam to water heat exchanger, hot water circulating pumps, and an air handler. Hot water from each heat exchanger serves both perimeter radiation located throughout the Unit and the air handler heating coil. The hot water temperature is reset manually. Hot water is supplied to perimeter radiation from the basement of each unit, up through the three floors, to a reverse return loop in the attic. For temperature control, the Units I and II are divided down the middle into two zones. Dining and activity areas are controlled separately in Unit III.

All three air handlers in each unit utilize 100% outside air to provide building ventilation. Supply air is heated and humidified at the unit and ducted up through the original sturdevent system masonry chases to each room. This air flows out of the building through similar chases to the gravity relief system in the attic. Separate exhaust fans serve toilet areas. Air conditioning is provided in localized areas through window air conditioners and water cooled air conditioners.

The air handling systems provide adequate fresh air ventilation. However the mechanical systems as a whole provide poor temperature control. The two zones of

perimeter radiation control in Units I and II can not handle the room to room load variations.

The hot water return piping is located in cold attic space, adding significantly to heat loss.

The masonry chases extending up through all three floors, conveying supply and exhaust air, do not have fire dampers. This is in violation of the NFPA 90-A

The short floor to structure heights severely limits the ability to install horizontal runs of ductwork.

Electrical (Stone North and Stone South)
The Stone buildings are fed from a 300 KVA transformer via a 1200 A switchboard in the Central Building electrical room. Breakers in the switchboard feed lighting, receptacle and air-conditioning panels located throughout each of the three units in the Stone North and South buildings. Each of the Stone buildings also has a single phase 120/240 feed from the same 600 A distribution panel as the Administration Building. The two Stone buildings currently house patients for AMHI.

The current transformer feeding the Stone Buildings is adequate to supply the existing loads, but will not supply the recommended mechanical equipment. The current switchboard has the capacity to handle present loads but may need to be enlarged depending on the amount and size of mechanical equipment used for cooling. The distribution panelboards are old but appear to be in fair condition.

Stone South and Southeast.

Stone South
Location: AMHI Central Campus
Inventory number: AUG064
Gross area: 79,156 sf
Primary occupant/use: MHMR&SA/AMHI

Stone South consists of the original male wing, constructed in 1836-40, and two extensions to the south and southeast. The first of these additions was designed by Henry Sawyer and constructed in 1854-55; the second was designed by Francis Fassett and completed in 1870. The first and second wings were destroyed by the fire of 1850, and were rebuilt in 1851-52. As with Stone North, Stone South has

undergone continuous renovation projects down to the present day. Both Stone North and Stone South contribute to the impressive scale and style of the entire Stone complex and relate the history of the institution to contemporary viewers. The simplicity of their design and quality of construction merit equally large-scale planning efforts to assure their continued use by the State of Maine.

Structural
(See Administration Building)

Mechanical
The mechanical systems in Units I and II were also renovated in 1973 and are similar to those in Stone North. The mechanical system in Unit III was renovated in 1987. Perimeter hot water radiation is valved for individual room control. Ventilation is provided through a unit ventilator located on each floor, supplying air mainly to the dayroom and corridor.

The mechanical system issues for Stone South are similar to Stone North with the exception of Unit III, which has better perimeter radiation control and no air distribution between floors requiring fire dampers.

Electrical
(see Stone North on previous page).

Central Building

Location:	AMHI Central Campus
Inventory number:	AUG062
Gross area:	69,000 sf
Primary occupant/use:	MHMR&SA/offices and support space

The Central Building, originally a smaller, architecturally-significant Victorian structure, has been expanded several times via modern one-story additions to serve as the main food service venue for the mental health facility as well as housing other service functions and amenities. Named Coburn Hall soon after its construction in 1876, it was designed by Francis Fassett, the building contained a chapel/amusement hall, a central kitchen and bakery, and dormitory rooms for the staff at the attic level. The Central Building was built of brick with granite trim, and was originally physically connected to the Administration Building via brick corridors, one at the basement and one at the 2nd floor. Later on, it was tied to other AMHI

The Central Building with 1958 1st floor addition.

buildings via enclosed overhead corridors and underground tunnels. This building was the first to depart from the severe neo-classical, monolithic granite style of the original hospital, instead representing the High Victorian Gothic style for which Fassett was well known.

The building was expanded in 1887 to the east and west along its axis in order to enlarge the kitchen, assembly room and dormitory spaces. It was enlarged again in 1909-10, to the north, east and west sides, leaving little evidence of the original building. George Coombs was the architect for all of these additions, and the later work was at least sympathetic to the original design in terms of materials and architectural details. Subsequent additions, of one and two stories in an institutional modern style executed in 1958, paid no attention to the previous work of either Fassett or Coombs.

The Central Building with Stone Southeast at left.

The interior has been extensively renovated, most recently in 1958 and 1981. Two of the more significant rooms retain their original character: the amusement hall and the library. The theater space remains largely intact from the original Fassett design, as expanded by Coombs, with ceiling trusses, stage and balcony still in place. The library features extensive wood paneling and six windows with colored art glass panels.

The building as it exists today is in generally good condition, but is out of character with the other AMHI central campus buildings because of the extent of anachronistic additions. Early photographs provide ample evidence that a Central Building restored to its 1886 appearance would play a key role in any revitalization plan for the historic AMHI campus.

Interior view of Chapel/Theater.

Structural

This building consisted of a three story center building with one story additions on each side. The roof of the center section consisted of full span wood trusses supported on exterior brick bearing walls.

Both the floor and the roof of the kitchen area have been reinforced and appear to be in good condition.

Mechanical

The service to the center building is adequate for the current use of the building. The addition of HVAC

equipment would require the switchboard and conductors feeding the switchboard to be increased in size along with the transformers feeding the distribution panels. The existing lighting and receptacle panelboards are old but appear to be in fair condition.

A central air handling unit for heating and ventilation was installed with the addition to the first floor in 1957. Located in a penthouse over the kitchen area, the unit has water/glycol preheat and two zones of reheat, each with a separate supply fan. A single return fan is also located in the penthouse. The unit serves the first floor.

Coburn Hall has heating and ventilation as well as cast iron steam radiation. The basement and first floors have hot water perimeter radiation supplied from a steam to water heat exchanger installed in the basement in 1957. The upper floors have cast iron perimeter steam radiation. A first floor smoking room has several particulate filtration units. The first floor café has a large roof mounted exhaust fan directly ducted to a single ceiling grille. Several compressors are located in the kitchen basement which serve cold storage rooms. Window air conditioning units are used in some areas.

The upper floors of this building have no fresh air ventilation and there are many areas with poor temperature control.

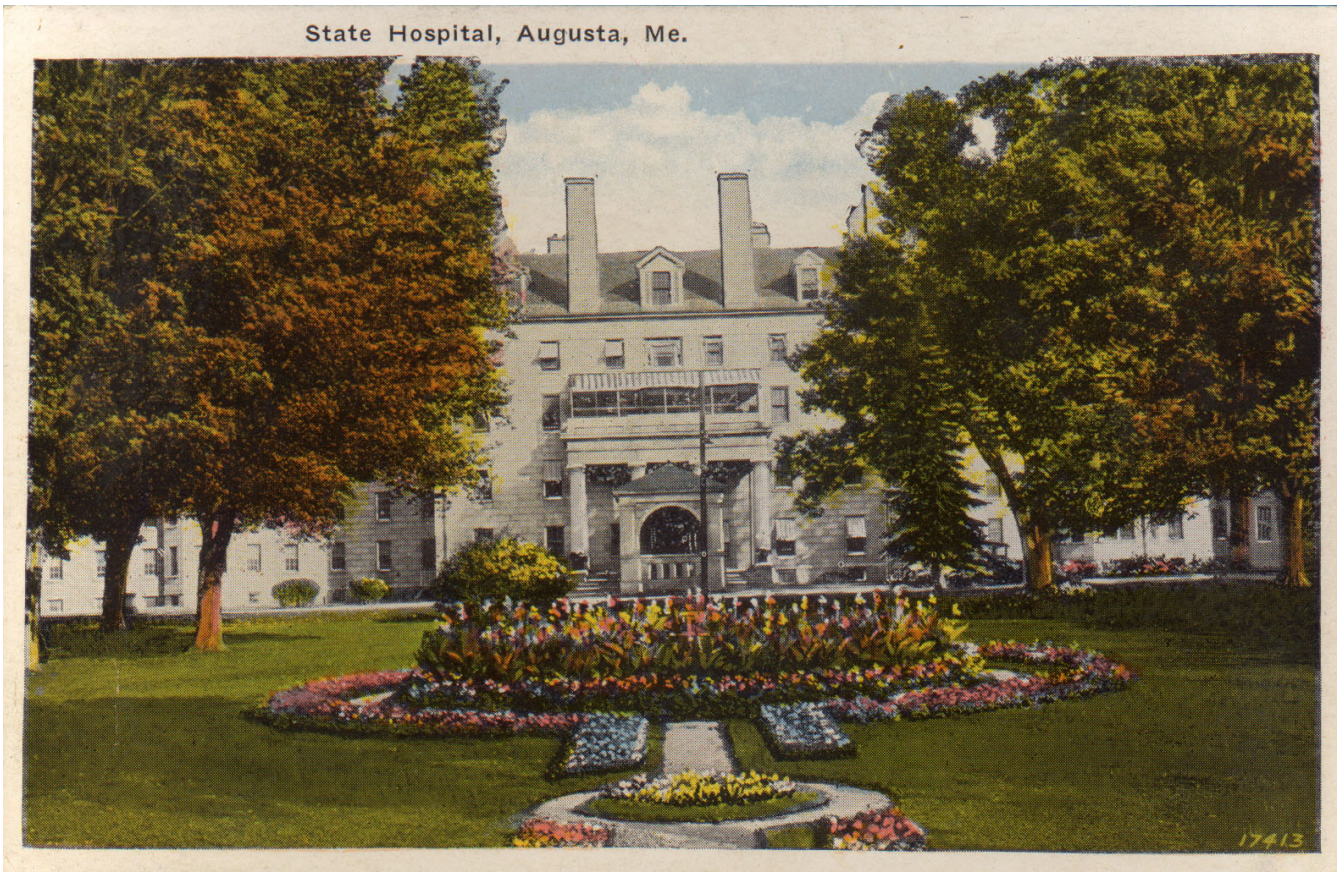
The balcony of Coburn hall has loose fiberous insulation and pigeon dropping littering the floor. Although the seating in this space is not used and its location is somewhat remote from main floor, it is likely to effect the general air quality of the room and provides a source of contamination for distribution by the air handling system.

The mechanical rooms in the basement do not have adequate ventilation and cause overheating throughout much of this space.

Electrical

The central building has a 1600 A, 240 V, three phase, three wire switchboard which appears to be an ungrounded system fed from a 300 KVA transformer in the basement electrical room. This switchboard feeds the kitchen equipment, mechanical equipment and elevators in the Central, Stone and Administration Buildings. The Central

Building also has a 600 A 120/240 V single phase distribution panel fed from a 100 KVA transformer. This distribution panel feeds lighting and receptacle panelboards throughout the building. A third 600 A, 240/120, single phase distribution panel fed from a 100 KVA single phase transformer in the vault powers the third floor stage panels, motion picture camera and Tyson and Pavilion Buildings. The central building is now used as support space for AMHI as a kitchen, library and offices.



Postcard view of Administration Building. Note formal planting beds in foreground.

General Recommendations

Architectural Building Renovation and Construction

Administration Building

Location:	AMHI Central Campus
Inventory number:	AUG061
Gross area/expansion, if any:	26,550 sf
Proposed occupant/use:	state office, meeting and exhibit space

The Administration Building, part of the original Insane Asylum/Stone Building Complex, should be considered a prime candidate for preservation and re-use. Expansion of this building itself is unlikely, though it is connected to the remainder of the Stone Complex, containing several hundred thousand square feet of space. It contains some remarkable interior elements that are worth preserving in their own right but that can contribute to a useful and functional State office building. A preservation plan for the building should include the removal of the rather unfortunately-designed 1892 porte cochere and the

restoration of the main entrance. The rehabilitation of the Administration Building, along with the rest of the Stone Complex, should be guided by preservation/design standards to assure the highest quality of restoration/ rehabilitation.

Stone North

Location:	AMHI Central Campus
Inventory number:	AUG063
Gross area/expansion, if any:	87,200 sf
Proposed occupant/use:	state office, meeting and support space

Stone North should be considered a prime candidate for preservation and re-use as part of an overall conversion plan for the entire Stone Building complex. The open space formed by Stone North, Stone South, the Administration Building and the Central Building could be enclosed with a skylit addition to create new offices and support spaces in a pleasant, light-filled atrium space, defined at its outer boundaries by the magnificent granite and brick walls and impressively-scaled windows of the existing architecture.

Stone South

Location:	AMHI Central Campus
Inventory number:	AUG064
Gross area/expansion, if any:	79,156 sf
Proposed occupant/use:	state office, support and meeting space

See discussion of Stone North above.

Central Building

Location:	AMHI Central Campus
Inventory number:	AUG062
Gross area/expansion, if any:	69,000 sf
Proposed occupant/use:	state office, meeting & support space

The Central Building, when it was completed, was a whimsical structure stylistically when compared to the somber grey granite structures of the Stone Complex. Much of its original exterior has been covered by additions beginning in 1887, but there is enough evidence remaining to permit a restoration of the lower walls of the building. A rehabilitation of its extant significant interior spaces,

namely the library and the theater/chapel, both facilities that would be very useful in a modern office campus setting, is also recommended. It is physically, integrally connected to the Administration Building, and tied to other Central Campus buildings via enclosed overhead corridors and underground tunnels. The Central Building should be restored to its original appearance and configuration and incorporated into the preservation and reuse of the Stone Complex. This would require the removal of the modern brick additions but this space could be replaced by enclosing the open space between the original Central Building and its immediate neighbors, the Administration Building, Stone North and Stone South.

Structural – General Recommendations

The structural systems of the Administration Building, Stone North, Stone South, and the Central Building will need to be evaluated in detail as part of the first steps toward rehabilitation of these buildings. Building codes and best practices, as they relate to historic buildings (and new buildings, for that matter) have changed dramatically since these buildings were built, and since they were last renovated. For example, more attention is paid to the abilities of structural systems to withstand seismic forces and snow loads.

Exterior walls will require thorough examination to make sure they are firmly footed and properly connected to floor and roof structures. Roof structures, all of which are wood framing, should be subject to analysis and calculations to confirm their load-carrying capacity. Reinforcement will probably be necessary, particularly where one section of the building abuts another. The conditions and carrying capacities of floor systems must be compared with the proposed occupancy load requirements, and the capabilities of the original structure upgraded if necessary.

We do not expect that any extraordinary efforts, beyond what is typically encountered in historic buildings constructed of these materials and systems, will be required. Bringing the Stone Complex up to contemporary structural standards will assure its continued usefulness and safety for the next century.

Mechanical – General Recommendations

1. Recommendations are made on the following premises:

- All buildings being considered for office occupancy will be air conditioned.
- New and renovated systems should comply with all applicable code requirements such as ASHRAE Standard 62 - Ventilation for Acceptable Indoor Air Quality, and NFPA.

2. New air handling systems are necessary for all buildings or portions of buildings requiring air conditioning. This includes: Stone North, Stone South, Administration, and the Central Building.

3. *Preliminary* system design recommendations will be influenced by the following issues:

- Design options for older buildings undergoing renovations are more limited than for new buildings due to numerous factors. For example, most of these buildings, some over 100 years old, were not designed to accommodate the extent of ductwork typically associated with modern ventilation systems. Floor to structure heights are often too low to allow for installation of ducts in ceiling space. Some buildings have structural floor slabs that limit the ability to run main ducts vertically.
- Many of the buildings are long and narrow, meaning that they have a lot of "perimeter" space. This means that the heating and cooling loads are highly influenced by the building envelope and will vary throughout the building according to orientation and time of day.
- Systems should be straightforward and easy to maintain. Where applicable, repetitive system types may help simplify maintenance issues.
- Central monitoring and/or control may be desirable, especially for this type of campus setting where mechanical rooms are scattered and facilities personnel must cover a number of buildings.

4. *Final* system design will be influenced by the following additional issues:

- The owner's needs and expectations, budget constraints, and phasing of renovations.
- Most of the buildings are currently occupied or partially occupied. Decisions must be made as to whether occupants remain and parts of the building kept operational during renovations.

Mechanical system recommendations generally fall into two categories:

- Fan coil system. This is recommended where floor to structure heights are low or central corridors are narrow, making installation of large trunk ducts difficult or impossible. Four pipe fan coil units are used for heating and cooling individual rooms/spaces. A central air handling unit provides the proper quantity of outdoor air required for ventilation. This air is tempered at the central unit and ducted to each fan coil unit. A heat exchanger using steam from the central boiler plant provides heating hot water. An air cooled chiller with remote evaporator provides chilled water. Both are piped to the central air handler and each of the fan coil units.

Advantages of this type of system include:

- Individual room temperature control to accommodate load variations;
- Both heating and cooling available year round;
- Smaller ductwork to fit in limited ceiling spaces.

Disadvantages include:

- More maintenance than all-air systems;
- Maintenance must be done in occupied spaces;
- Air side economizer cooling is not possible;
- Fan noise is a possible issue.

Variable Air Volume (VAV) Systems. These systems are possible where ceiling space will accommodate large ductwork and VAV box installation. Central air handler unit(s) provide heating and cooling, outside air ventilation, economizer cooling, and variable air flow via variable frequency drives. VAV boxes with hot water reheat serve individual rooms/spaces. A heat exchanger using steam from the central boiler plant provides heating hot water for the central air handler unit(s) and VAV boxes. An air cooled chiller with remote evaporator provides chilled water for the central air handler only.

Advantages of this system include:

- Individual room temperature control to accommodate load variations;
- Both heating and cooling available year round;
- Reheat insures that proper air distribution can be maintained;

- Economizer cooling is possible.
- Disadvantages include:
- Space for ductwork will require dropped ceilings.

Mechanical – Individual Building Recommendations

Administration Building

- Completely remove existing ventilation and perimeter radiation systems.
- Install four pipe fan coil units to provide heating, cooling and ventilation to individual rooms. Units to be ducted with required amount of fresh air ventilation, tempered and distributed from central air handling unit.
- Install a new hot water heat exchanger, hot water and chilled water distribution systems with piping mains in the basement.
- Install a new air handling unit located in the basement t provide tempered 100% outdoor air for ventilation.
- Provide new hot water radiation at entryways.
- Install DDC controls to allow for centralized control and monitoring.

Stone North and Stone South

- Completely remove existing ventilation and perimeter radiation systems.
- Due to the lace of ceiling space, configure distribution systems vertically wherever possible. Install vertical four pipe fan coil units to provide heating, cooling and ventilation to individual rooms. Units to be ductd with required amount of tempered fresh air ventilation, tempered and distributed from a central air handling unit.
- Install a new hot water heat exchanger and hot water distribution system for each of the buildings.
- Install two 175 Ton air cooled chillers with remote evaporators to serve a single chilled water system for the Stone buildings and the Administration building. Pipe mains in basement and branch vertically to fan coil units.
- Install an air handling unit in the basement of each Unit providing tempered 100% outdoor air, sized for minimum required ventilation. Duct supply directly to fan coil units through vertical chases.
- Provide new hot water radiation at entryways.
- Install DDC controls to allow for centralized control and monitoring.

Central Building

- Remove the heating and ventilation systems and perimeter hot water and steam radiation systems.
- Install a dedicated roof-top make-up air unit to serve the kitchen.
- Install four pipe horizontal fan coil units to provide heating, cooling, and ventilation to individual rooms. Units to be ducted with required amount of fresh air ventilation, tempered and distributed from central air handling unit.
- Install a new air handling unit located in the penthouse to provide tempered 100% outdoor air for ventilation.
- Install a 150 Ton air cooled chiller with remote evaporator to serve the chilled water system.
- Install a new hot water heat exchanger, hot water and chilled water distribution systems.
- Provide hot water radiation at entryways and select perimeter locations.
- Install DDC controls to allow for centralized control and monitoring.

Electrical – Individual Building Recommendations

Administration Building

Additional mechanical equipment will require the existing service to be enlarged. A new 150 KVA transformer in the Central Building vault feeding a 400 A main distribution panel in the existing panel location would add enough capacity to add the recommended HVAC equipment to the building. The building should be totally re-wired and existing lighting and receptacle panels replaced.

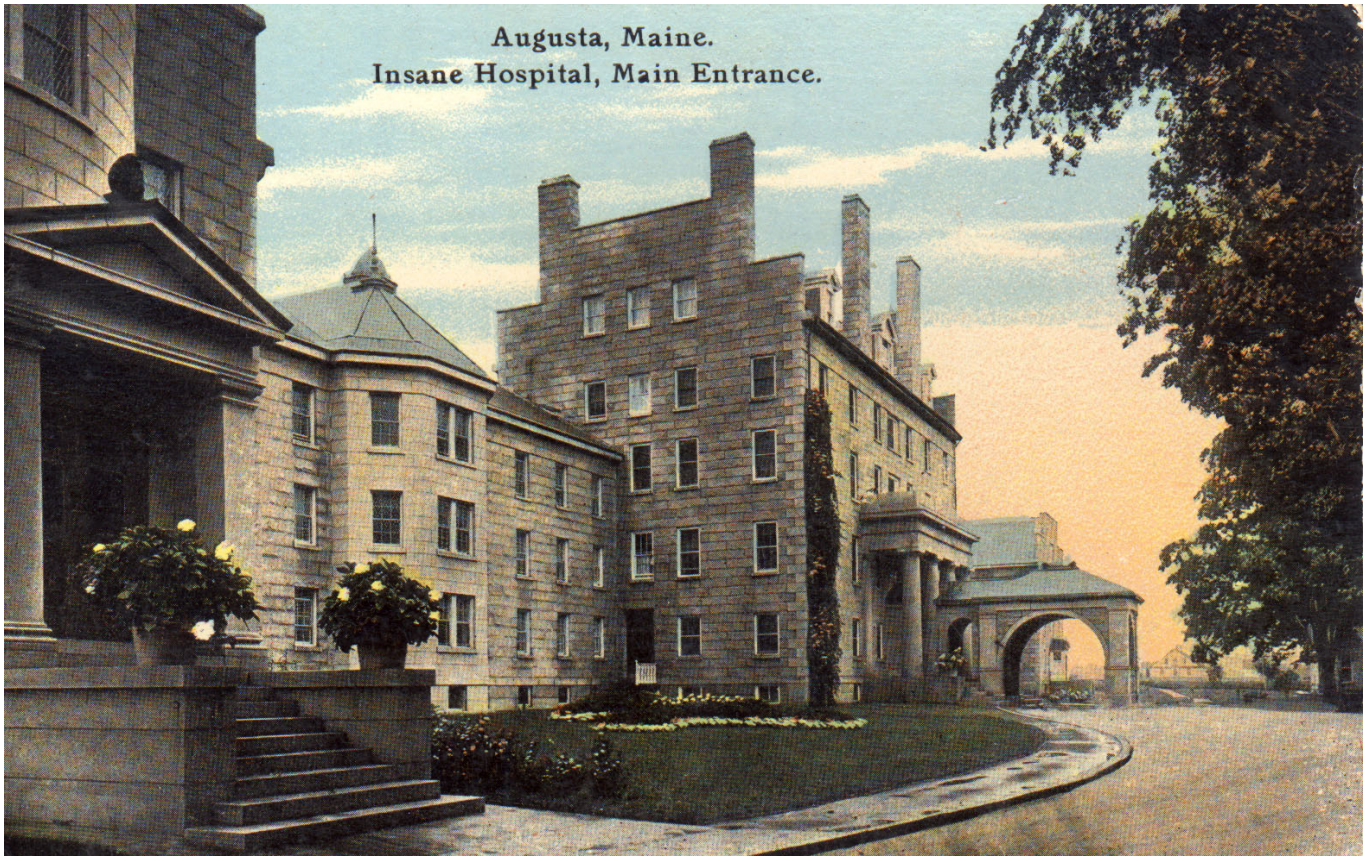
Stone Buildings

The potential addition of two large chillers to service the stone buildings will require upgrade of the existing switchboard or the addition of a second switchboard to feed the mechanical equipment for a new HVAC system. A 1000 A switchboard at 480/277 v fed from a 750 KVA transformer would be adequate to supply the proposed mechanical equipment. The existing switchboard would remain to feed the existing lighting and receptacle panelboards. The buildings should be rewired and lighting and receptacle panels should be replaced. Panels fed from the remaining switchboard should be re-fed.

Central Building

To provide power for the proposed chiller and other mechanical equipment, a 600 A switchboard at 480/277 v fed form a 500 KVA transformer would provide adequate power for the recommended mechanical equipment.

The existing 600 A single phase distribution panel has surpassed its estimated service life and should be replaced. The existing 1200 A switchboard feeding the mechanical equipment and elevators appears to be an ungrounded distribution system and should be replaced with a new three phase 4 wire grounded system. The existing wiring should be upgraded and new distribution panels installed in place of existing lighting and receptacle panelboards.



Administration Building and Stone North in early 1900's postcard view.

Proposed Space Plan Concepts

The Master Planning Committee (MPC) directed SMRT to look at the existing layout of the Stone Building in detail, to generate one or more concepts showing how the building could be re-used as a modern State office building, and to report to the committee on its findings. Through its previous planning projects carried out for the Bureau of General Services, including an existing condition analysis of the Augusta Mental Health Institute (AMHI) campus and its buildings, and a preliminary space program for every State agency occupying State-owned or leased office space in the greater Augusta area, SMRT was able to create a prototypical space program for a single State agency or multiple agencies that could use the amount of space available in the Stone Building complex.

We were directed to consider selective demolition of non-original, recently-constructed additions and to consider new construction as necessary to allow the building to function as a state-of-the-art 21st century office building. In so doing, we were to use the best historic preservation practices so that

the essential character and historic features of the building would be preserved and enhanced.

These three views of the Stone South interior show three types of spaces.

Top: Day room with bay window at end of corridor. Center: Double-loaded corridor with private rooms on either side. Bottom: Open ward.

As already described, the Stone Building actually consists of eight individual but related parts. Three of these were the original Stone Building, now referred to as the Administration Building and the wings to the immediate north and south of it. This was the original hospital building, completed in 1840. Next came the first north and south wings, built in 1848 and 1855, respectively, and constructed perpendicular to the original building. Then came enlargements of the north and south wings, known as the Northeast and Southeast wings, attached at their eastern ends. And last came the Central Building, also known as Coburn Hall, finished in 1875. While the interiors were subject to numerous renovations, some substantial, the exteriors today remain very true to their original appearances, except for the Central Building, which has had its main floor obscured by several modern additions. The total square footage of the complex as renovated and enlarged in 1958, and as it exists today, is 261,900 gross square feet.

As we toured the building and studied floor plans and photographs, it became apparent that the interior spaces would lend themselves readily to modern State office use. In part, this is due to changes in mental health treatment methods over the years. Changes from open wards to individual rooms, with support and amenity spaces such as nursing stations and day rooms scattered at intervals throughout, provide us today with a variety of sizes and shapes of spaces building-wide, on all three usable levels.

This mix of spaces works well with the needs of today's government office workers. The modern office building today consists of individual offices for managers and supervisors who need confidentiality and privacy; larger offices with two or three people dedicated to the same tasks; open office areas for clusters of work stations, ranging from team spaces for 5-6 people to call-center-type ranges of same-function stations for 20-30 employees; conference and training rooms for groups of four to 100 or more; and support spaces such as break rooms, server/telecommunication rooms, recycling stations, reception areas, and other special-purpose spaces. The variety of spaces in the Stone Building allows for all of these

uses, and in the required quantities and locations for the number of employees anticipated to work there. As an added bonus, the linear nature of the building provides for generous daylight through many and large windows around the entire perimeter of the complex. Some of the day rooms feature magnificent bay windows; and the northeast and southeast wings have sunporches that run nearly the entire length of each wing.

Also of benefit is the presence of many stairways throughout the building. Although some of these will need to be upgraded to meet current code, most have been renovated recently enough that they meet today's code requirements for existing buildings. There are elevators in several locations. Again, some may need to be upgraded, others are compliant with today's requirements.

Due to the lack of clearances, the sizes of spaces, and difficulty of access, we have assumed that the basement of the entire complex would be utilized only for storage, mechanical, electrical, and other infrastructural needs. There would be no office space or other "habitable" space in the basement.

The Administration Building, the original structure at the center of the complex, is treated in a special manner due to its unique spaces and finishes. Although no doubt Spartan and simple in its original Greek Revival guise as a self-contained hospital, it was extensively renovated in the 1890's and, reflecting the increasing size of the institution, was converted to a special purpose: housing the hospital's administrative staff, including its superintendent and other managers. Thus stylish woodwork was installed, a new monumental stairway with stained glass windows at the landings was constructed, and elaborate fireplace surrounds and inlaid floors were provided for the benefit of the administrators. All of these features remain, and can be incorporated into the restored building. We propose that these spaces remain executive offices, with the finest spaces becoming conference rooms so that more people will have the opportunity to experience them. At the main floor main entrance, we suggest the creation of a new reception/front office area to the left of the front doors, and customer-oriented library/display/waiting space to the right.

The Central Building, originally known as Coburn Hall, located immediately behind the Administration Building within the "U" formed by the original building and the four wings, is a bit more problematic. It was constructed as specialty space in support of the main hospital building. It contained a library, a theater/chapel, and the original central kitchen and bakery. It also had several rooms to house nurses on the upper floor, and some offices. The library remains in use today in the form that it took after a renovation in the 1920's; and the performance/chapel space is much as it was after it was remodeled and expanded in 1887. The remaining space has been renovated in more recent times, probably during the major expansion of the main floor and basement kitchen and bakery in the 1950's. Our plan calls for the removal of the modern additions and the restoration of the building to its basic shape and exterior appearance of 1887 above proposed new construction.

The open courtyards now in place, formed by the areas between the Central Building and the various wings of the Stone Building, are currently paved with asphalt and are inhospitable, "leftover" spaces. It is our recommendation that, in tandem with the restoration of the exterior of the Central Building, these courtyards be filled in with new construction to allow the development of large open-office floor plans for the first and second floors. At the first floor, we suggest that the office space be supplemented by a glass-walled cafeteria, overlooking the rest of the campus to the east and large enough to serve as the main dining facility for the entire campus. A new kitchen, much smaller than the existing one, and support spaces such as food service offices and storage, restrooms, and vertical circulation, would be placed on the main level of the Central Building.

At the second floor, the original Central Building library would be restored for use as an agency library and meeting room; the remainder of the building would become a conference and training center, with the third floor chapel/theater restored for special presentations and events. The second floor of the new infill construction would be open office space, with conference rooms located along a curved glass exterior wall, again overlooking the campus to the east. These large expanses of open floor plate at the first and second floors would provide the opportunity for flexible layouts of numbers of work stations not available in the original building. The second floor open office areas would

have the benefit of skylights, creating atrium spaces, to bring daylight deep into these areas. The insertion of new construction in these areas also allows us to knit the entire complex together with building systems and infrastructure. By routing HVAC, electrical and telecommunications systems through the new infill, we can feed from the new into the old spaces, minimizing the impact and expense of running these systems through the older buildings.

We have provided two different scenarios, both using the building in similar ways and both featuring the infilling of the courtyards. The first, Option A, shows the most dense population that could be accommodated using good office space planning standards. To establish the number of workers we should use to prepare this scheme, we used a figure of 200 square feet per person. Prior to performing this calculation, we subtracted some specialty areas of the proposed building, such as the cafeteria and kitchen and some of the meeting spaces, as these are proposed to serve functions beyond the needs of the Stone Building. In this fashion, we arrived at a proposed maximum building population of 1000 people. The plans show a population of 970. Although dense, the space plan still provides generous community spaces and amenities appropriate for contemporary office spaces and customer service. Option A adds about 55,000 sq. ft. to the complex, while 15, 700 sq. ft. (the 1958 additions) would be removed, yielding a total building area, existing and proposed, of 301,300 gross square feet.

The second scenario, Option B, presents a more gracious, though still efficient, layout, in response to the need of some agencies for larger workstations and more substantial file storage needs. We also used this option to show some of the most current trends in office space planning for teaming, hoteling, and other new ways of working together. In addition, we created two two-story atrium spaces in the new infill areas to allow the daylight from skylights to penetrate through the second floor to the first, thereby giving those working in the areas of the building furthest from the outside walls daylight from above. This scheme also has a larger cafeteria and additional conference space. This scenario suggests a building population of about 750 employees. Option B adds approximately 48,000 sq. ft. to the building, while again, 15,700 sq. ft. of the existing Central Building

would be demolished. The total area of the renovated and expanded building would be 294,200 gross square feet.

Both schemes are built on our attempt to minimize changes in the original buildings, by allowing the new infill construction to handle systems and infrastructure and provide the large, open floor plates that may be required (these open spaces can always be subdivided into smaller spaces if necessary). The exterior of the existing buildings are virtually unchanged except for in the courtyards and for the restoration of the Central Building exterior walls above the second floor. The main elevation of the complex, facing the river, will be restored to its original Greek Revival appearance through the removal of the rather awkwardly-designed porte cochere added in 1887.

The scope of work for the restoration and re-use of the Stone Building complex would be similar to that of the Burton M. Cross State Office Building project. The interior spaces would be gutted back to the original interior and exterior walls. Removal of original interior masonry walls would be held to a minimum by making the best possible use of the original layout (and we have accomplished this with the space plans shown). Completely new electrical, heating, ventilating, air conditioning, sprinkler, lighting, telecommunications and emergency systems would be installed, requiring creative engineers to find ways to thread these systems through the original masonry structure without excessive expense or damage to character-defining original building fabric. New finishes (flooring, wall covering or painting, ceiling, wood trim) would be similar to those used in the State Office Building.

A thorough review to assure compliance with life safety, building, energy and ADA codes will no doubt lead to upgrading of stairways, corridors, egress systems, and elevators. Access from the exterior will be evaluated to determine if and where accessible ramps will be required and how they will coordinate with internal building circulation. The structural system will be evaluated in light of the appropriate building code. It is anticipated that some upgrading will be required, but overall the building appears to be in fair to reasonably good structural condition. Reinforcement of the existing wood attic framing and a careful evaluation of the terra cotta brick and concrete floor

system and the brick and granite exterior walls to locate hidden defects will be required.

The exterior building envelope will receive a restoration treatment. The existing granite is in good condition but the overall wall system – the granite exterior blocks, the brick backup, and the attachment of the walls to the structure – needs to be evaluated and will probably require restoration over substantial areas of the exterior surface. Those areas of the roof that retain the original slate should be inspected and repaired with special attention paid to flashing and underlayment. Those areas that have been reroofed with asphalt shingles should be returned to slate. By restoring the existing and installing new where necessary, we will be creating a roof that should last for a century.

Window work will be a major component of the exterior restoration. There are over 600 windows in the complex, and all will require either restoration or replacement. The existing windows should be evaluated carefully, as most, if not all, of them may be suitable for repair rather than replacement. There are many routes that can be taken, from consolidation and repair, to sash replacement, to complete replacement of frame and sash. All of these options, and some in between, should be studied by experts in the field and cost estimates developed for each option. Should replacement be necessary, there are several options here as well. The recent window work in the State House should be considered a model for the work that would be done on the Stone Building.

Many of the exterior doors have been replaced. Original doors, and those that remain from the major renovations of the late 19th century, should be retained and restored. Modern, inappropriate doors should be replaced with new ones to match older doors to be retained. All must meet modern code and energy requirements.

Site work will be confined to the grounds immediately surrounding the building, and should include landscaping, walkways, lighting and landscape furniture at building entrances. Our plan for the infilling of the courtyards includes an outdoor eating area adjacent to the new cafeteria and conference spaces. This outdoor room will add a new dimension to and sustain continuity with the existing grass lawns and courtyards formed by the Stone Building group at

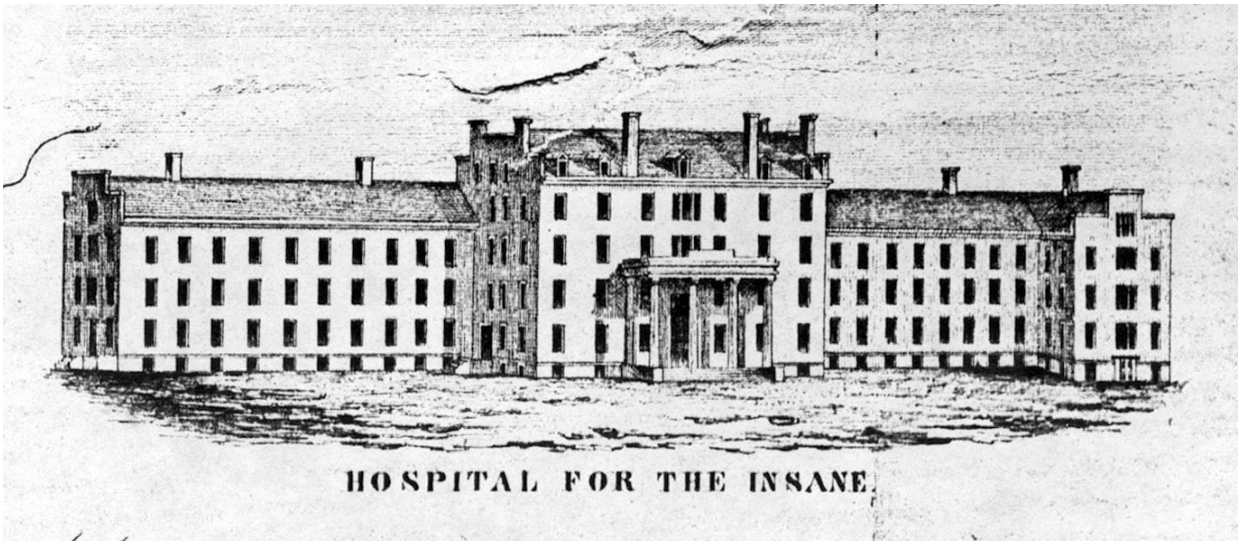
the west end and the Tyson Building, the Williams Pavilion and the Harlow Building at the east end.

Because the Stone Building is listed in the National Register and is considered such an important building, the rehabilitation project should be conducted according to the Secretary of the Interior's Standards for Rehabilitation, and project plans and specifications should be subject to review by the Maine Historic Preservation Commission and the Capitol Planning Commission.

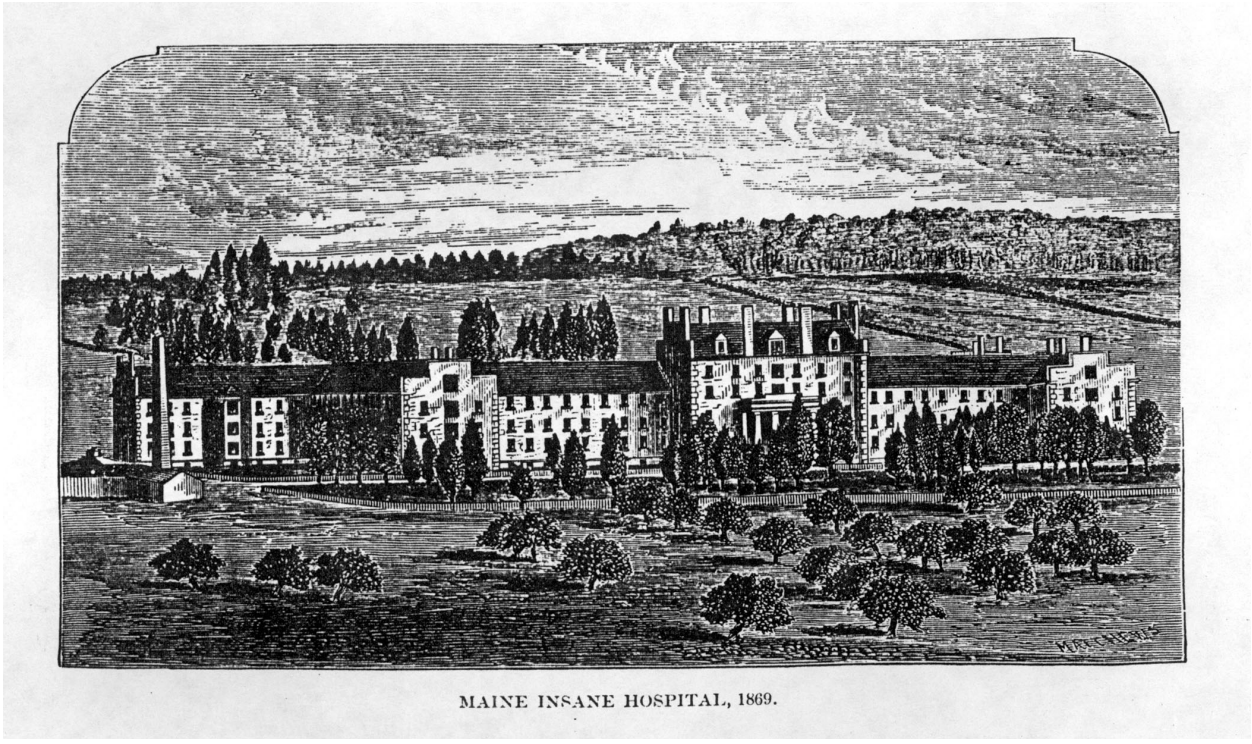
We believe that with a commitment to quality similar to that shown by the Administration and BGS for the State House and the Burton M. Cross State Office Building projects, the revitalization of the Stone Building can continue the State's efforts to manage the State's valuable and significant built resources prudently and responsively, preserving this remarkable building for future generations of Mainers to work in, visit, and experience. The design concept proposed, if implemented, will result in a fully-functional, state-of-the-art State office building that represents the best of modern and historic architecture.

This project would be the single most significant step in the implementation of the Master Plan on the East Campus. Together with the completed re-use of the Tyson Building, the planned rehabilitation of the Harlow Building, the completion of the new psychiatric treatment center, and various other, smaller but still important projects campus-wide, the Stone Building project will result in the transformation of the former Augusta Mental Health Institute into an attractive and economical campus for State employees and customers. We are pleased to be able to present these concepts, and look forward to a public discussion on the merits of the project, and to the ultimate rebirth and new use of the Stone Building.

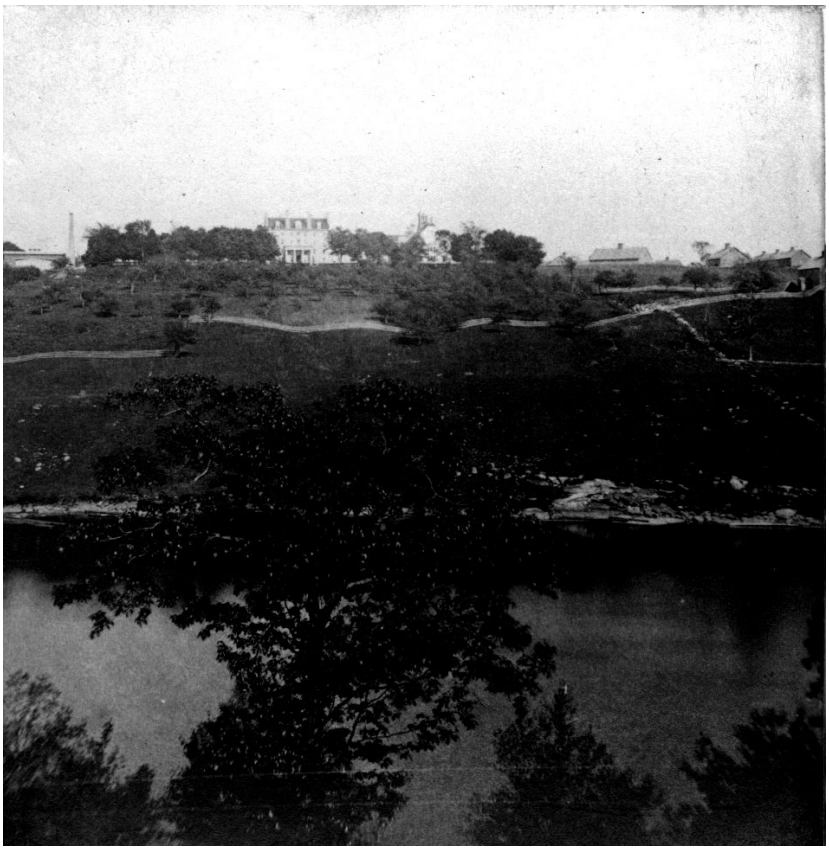
(inserts for another section follow)



Early drawing of Stone Building with Stone South as added in 1846-48.

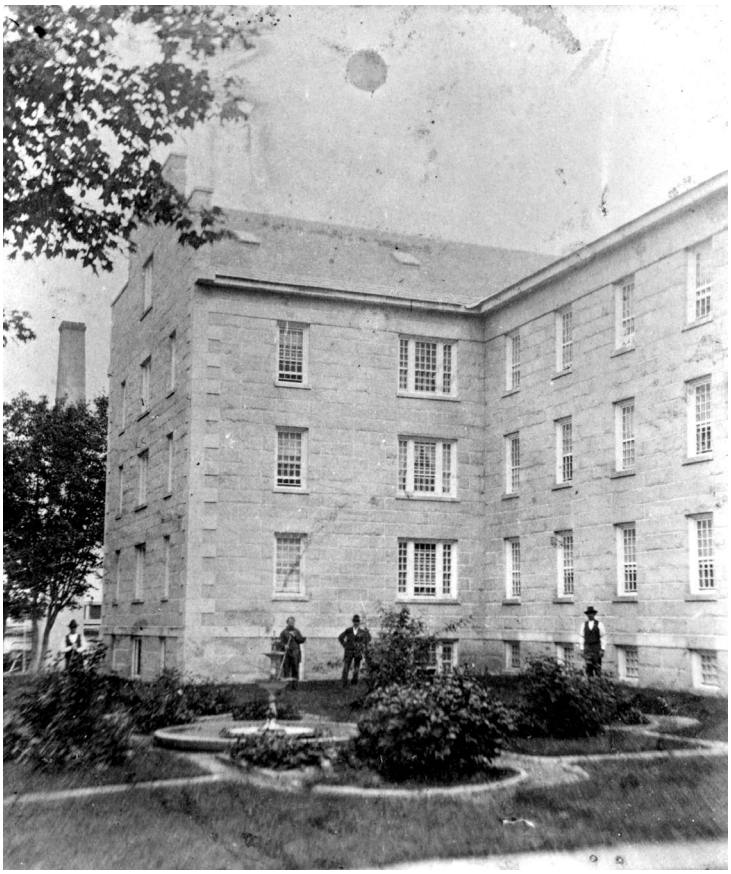


1869 engraving of the Stone Building showing the South, North and Northeast wings.



Stone Building in 1880's from across the Kennebec River. Note fences and barns reflecting the use of outdoor activities for patient therapy.

1875 view of Administration Building.

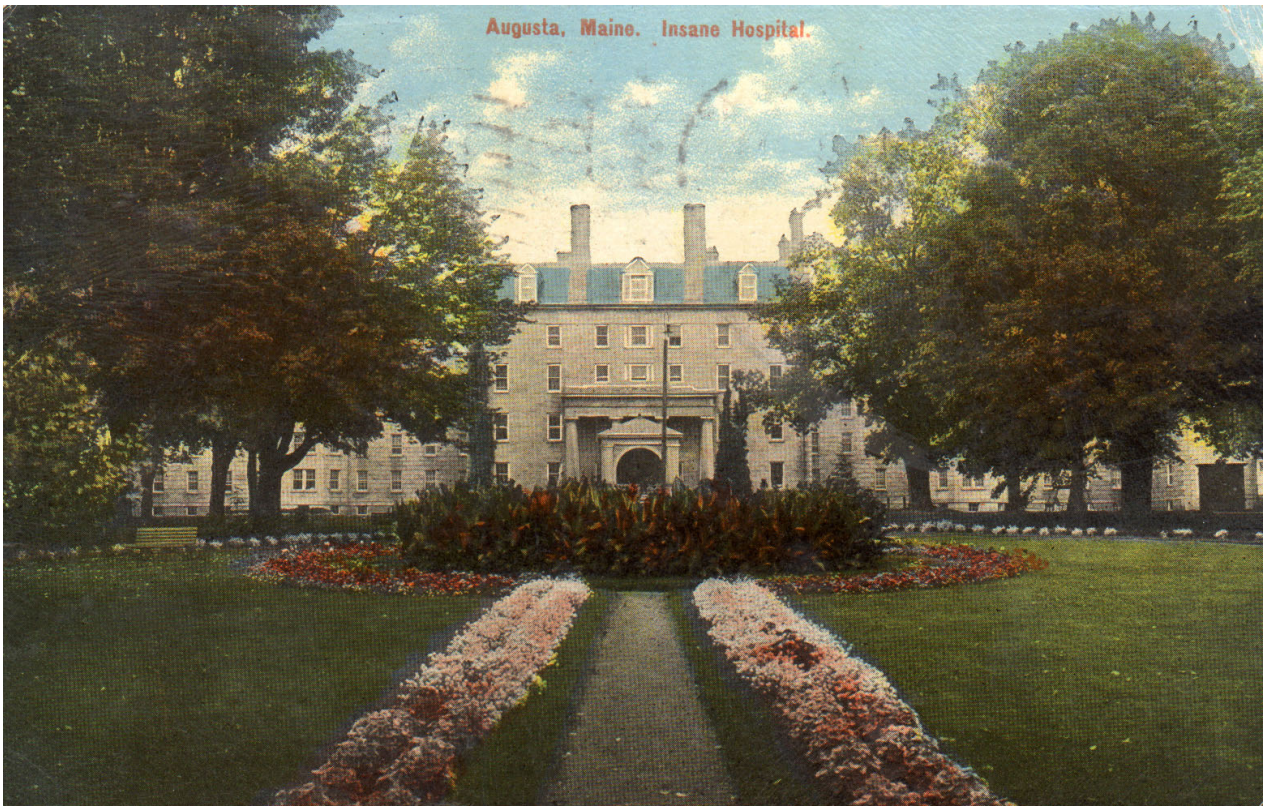


View of Stone South. Note extensive landscaping in the foreground.

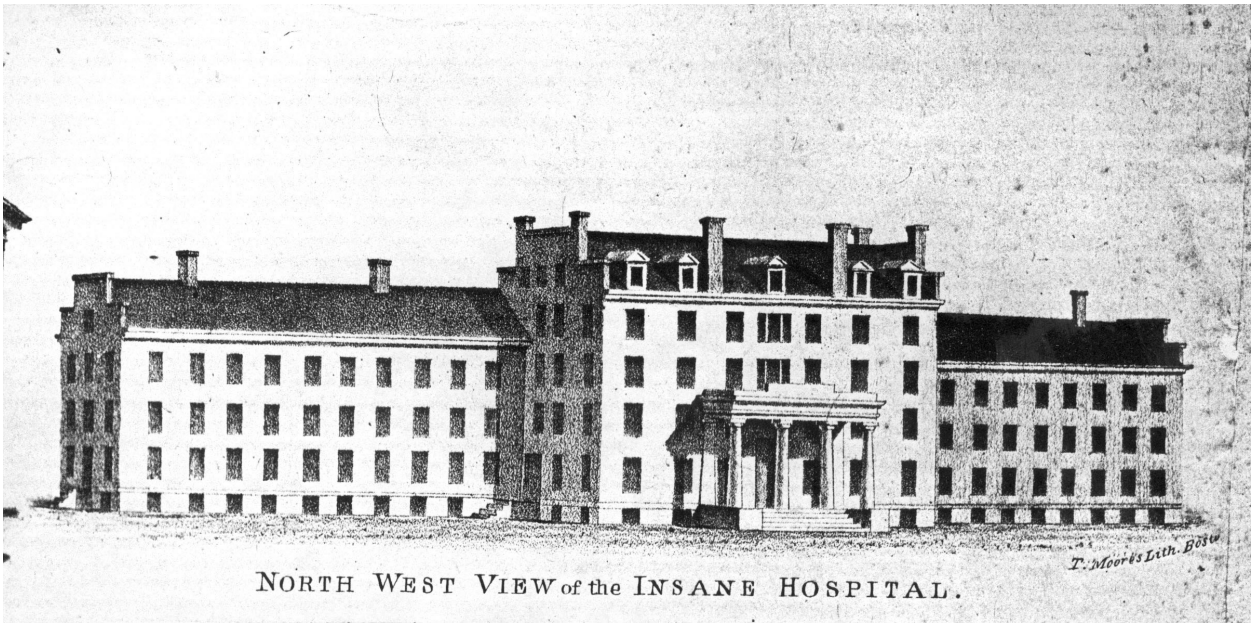
Administration Building, Stone North and Northeast in the 1880's.

View toward the west showing the Male and Female Pavilions of the early 1880's. The Central Building can be seen between them, while Stone Southeast is to the left.

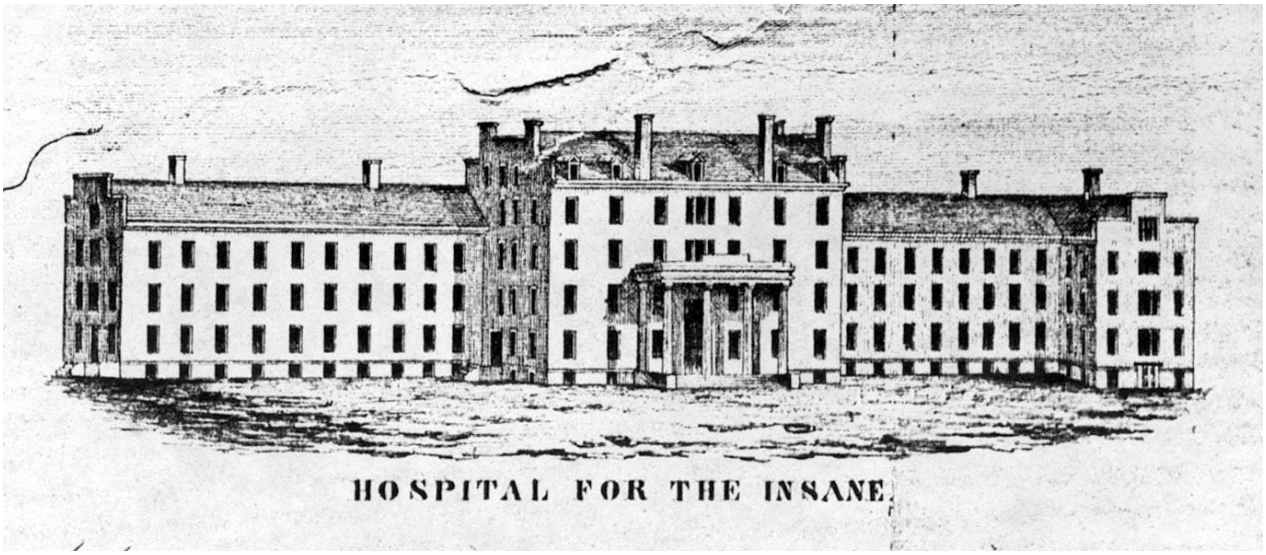
This view shows Stone Northeast and the Sanborn Building to the left, and the Female Pavilion and the Administration Building in the distance.



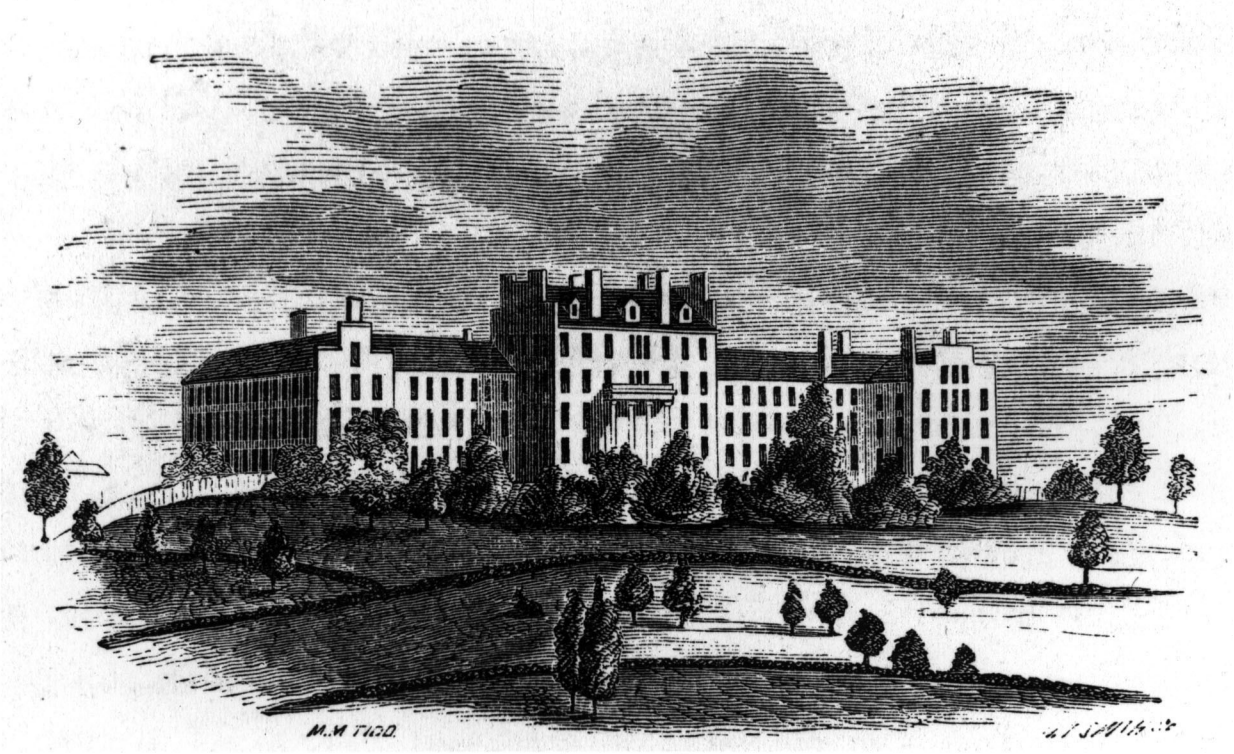
Postcard view of Stone Building showing the immediate grounds in their most developed state.



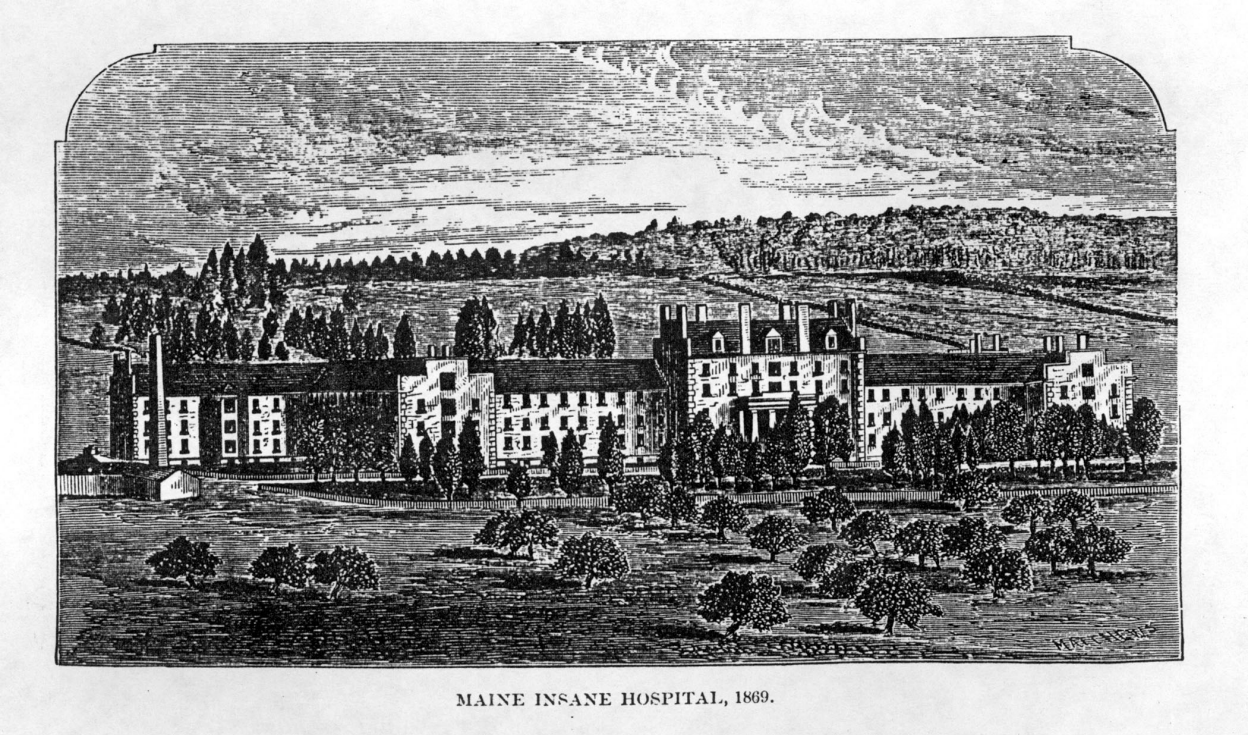
The Stone Building as it would appear between 1840 and 1846.



This 1851 drawing shows the newly constructed south wing.



The Stone Building with the North and South Wings in place, probably in 1854-55.



MAINE INSANE HOSPITAL, 1869.

The Stone Building as it appeared in 1865-69 with the newly-constructed Northeast wing.

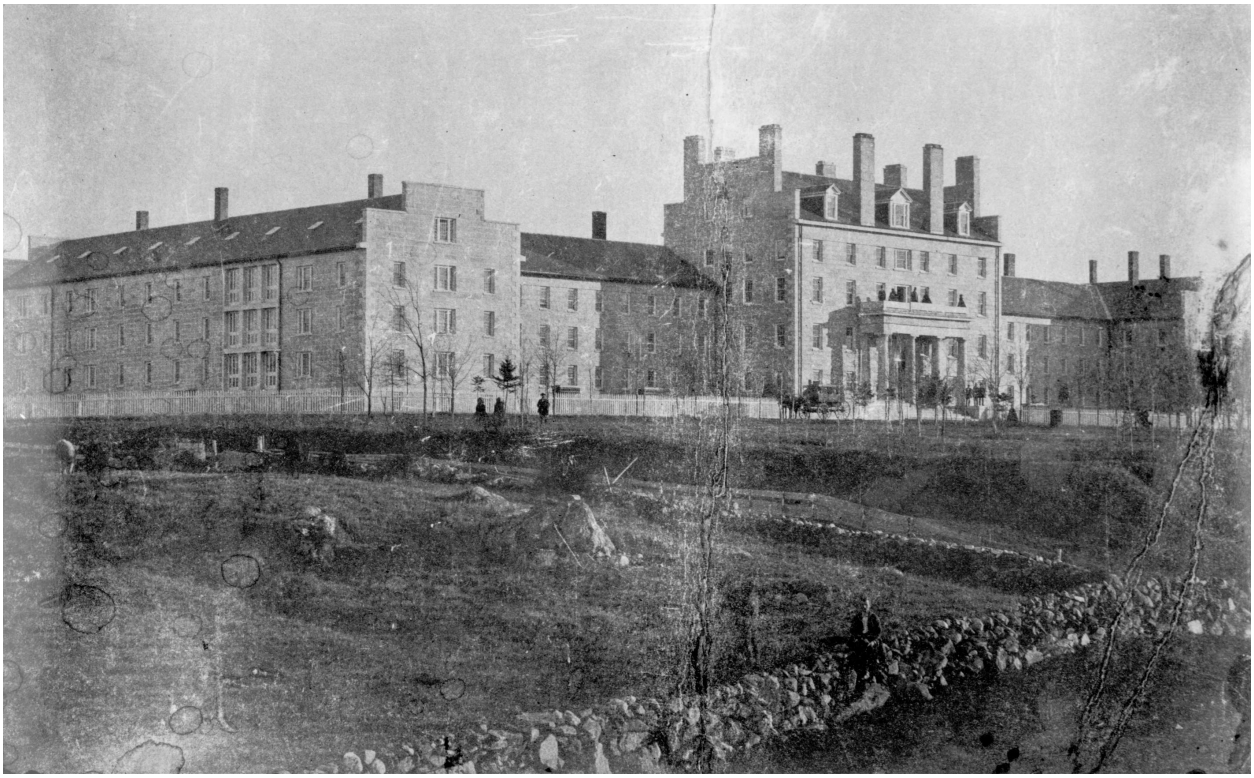
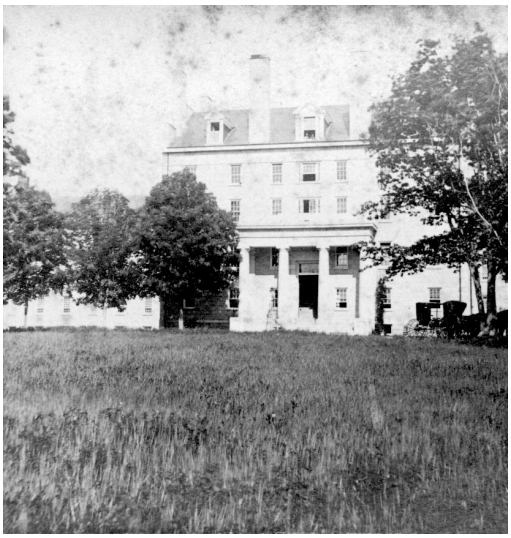
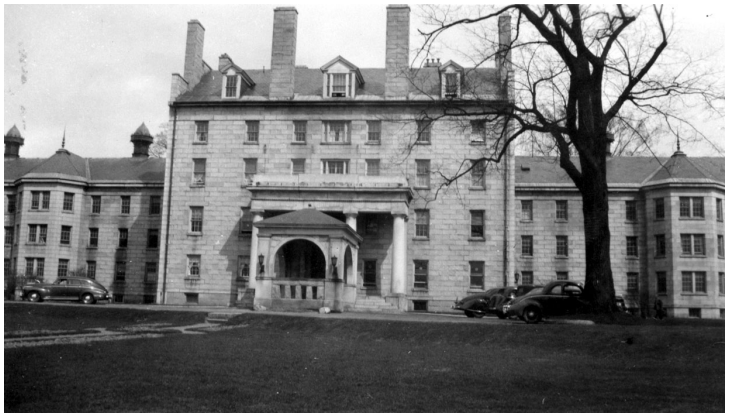


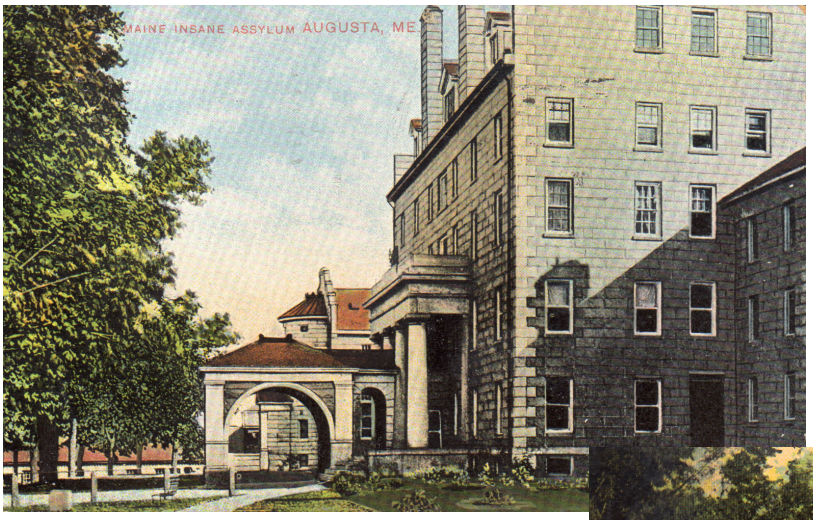
Photo from circa 1870's showing Stone North.

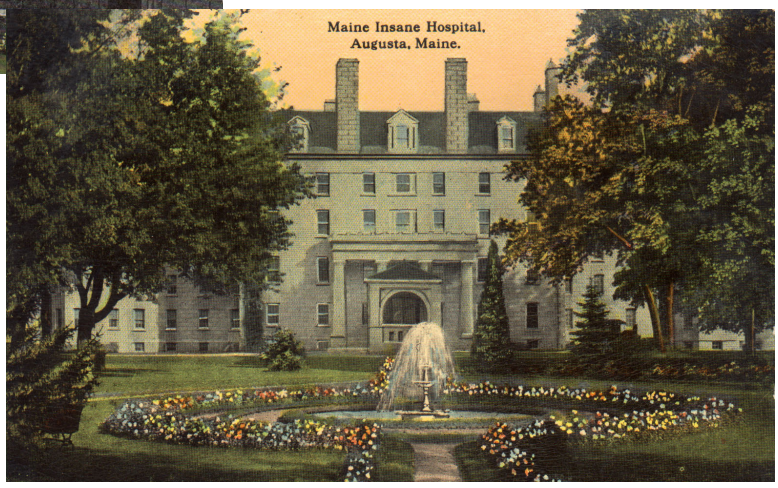
View of the North and Northeast wings. Note the bay window, canopy and porch at the end of the North Wing, the result of the extensive renovations of the 1890's.





These two views contrast the appearance of the Administration Building as originally designed, and with the 1887 porte cochere addition.

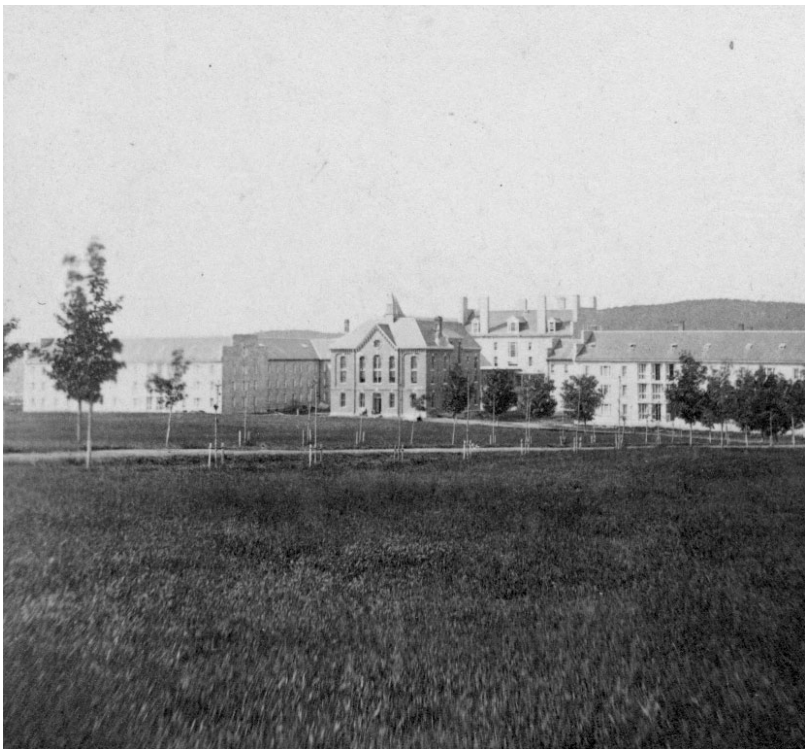




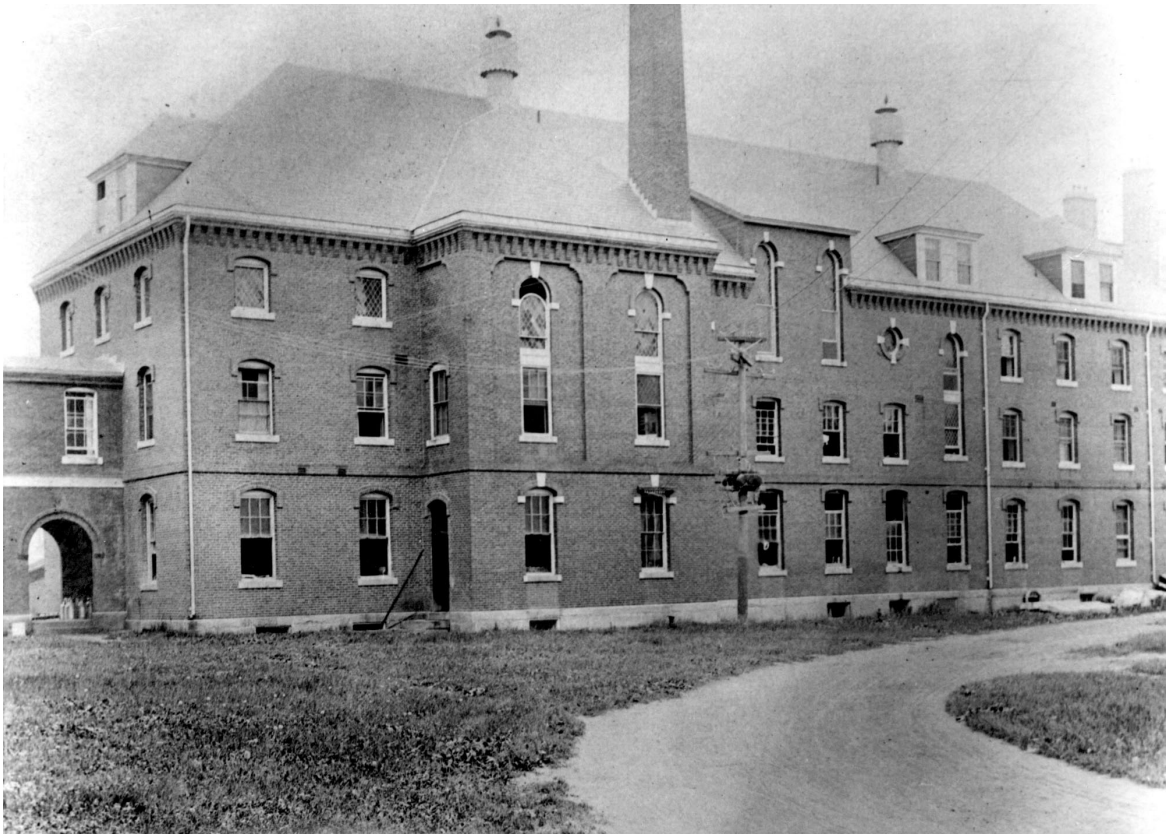
Two postcard views of the main entrance.

The main stair of the Administration Building dating from the 1894-97 interior renovations.

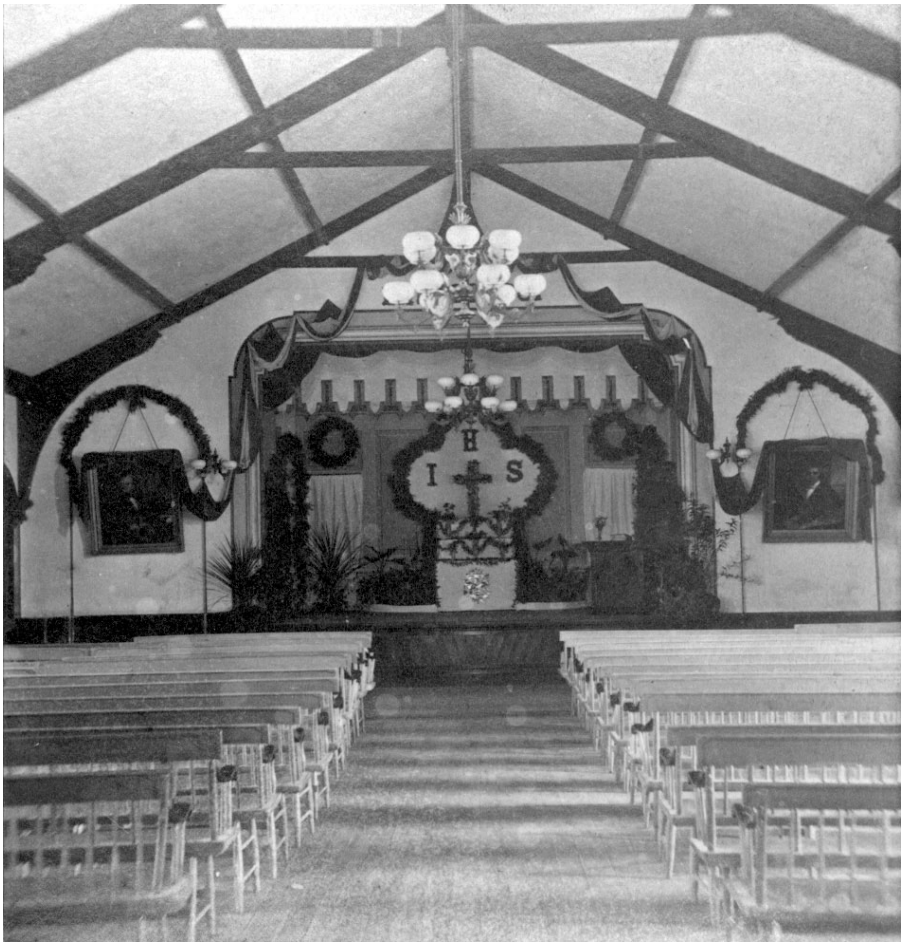
Elaborate wood paneling was added to the administrative offices in the late 1890's.



The Central Building as it originally appeared in 1876. Note the complete Stone Complex surrounding it in the background.



The Central Building as enlarged in 1887.



The Chapel/Theatre on the 2nd floor of the Central Building as it appeared after the 1887 addition.

A stained glass window in the Central Building library.