JONES & HERRIN
Architecture/Interior Design

ST. MICHAEL'S AND ALL ANGELS CHURCH
(EPISCOPAL)
ANNISTON, ALABAMA
PROJECT NO. 93049
PRESERVATION & RESTORATION PRELIMINARY OUTLINE NOTES
2 JUNE 1993

104 Jefferson Street • Huntsville, Alabama 35801 • 205/539-0764 • Fax 205/534-2289

JONES & HERRIN

Architecture/Interior Design

June 2, 1993

St. Michael's Episcopal Church
c/o Ms. Rebecca Burt
727 Hillyer High Road
Anniston, Alabama 36201

Dear Ms. Burt:

Following are some preliminary outline notes and observations relating to my brief site visit with you on April 26, 1993.

The following items are a tentative and general listing and discussion of the items that were observed in a brief walking tour of about 2 hours and an afternoon 2 hours of taking ± 100 photographs. It is not a comprehensive list or discussion. It probably touches on most of the restoration/preservation questions that will become apparent, together with Camille Bowman's "Brief Conditions Report" of November 1992 and Elizabeth Brown's notes (Alabama Historical Commission) of 1992. A building of this large size and considerable complexity will require considerable study to find and document conditions, decide on treatments and plans, and sort out a priority order and plan of execution. The purpose of this brief survey is to assist the St. Michael's Church in deciding on a plan of procedure.

Preservation needs and desires will influence costs, and obtainable funds will in turn influence at least the desires. The "needs" will involve the continued existence of the building and are not so easily subject to choices. A more detailed study will assist in determining probable cost-ranges of various items and will assist the Congregation in their planning.

1. I have about 100 mounted and annotated interior and exterior photos plus copies of 3 historic photos and an original elevation drawing for reference and record.

2. We toured the complete exterior, some roofs, the Sanctuary basement and viewed into the crawl spaces, many interior spaces, the tower, tower roof, and some other spaces.

3. A Mrs. Brazelton is thought to have the original architectural plans and details. Two sets of archival-quality copies of these should be made (preferably "Kronar" prints on transparent mylar film). One set should be stored flat (not rolled) in a safe, dry and fireproof place in the church office with a note on them that the originals should never leave the church except in case large working prints of them are needed, and then leave and return in the hands of the person in charge of the archive. This should be a firm rule. A well-meaning church member, plumber, etc. might forget to return the originals.

   If 11 x 17 partial prints are needed by a plumber etc, disposable xerox copies can be made in the church office and need not be returned or kept clean.

   Another set of Kronar prints should be kept in the city library archive (stored flat) or some similar remote archive in case one set is destroyed, damaged or not controlled.

   These drawings are valuable historic documents, but also are of great practical and monetary value. To have to hire an architect to make measured drawings of this building

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and its details for major repairs or work would cost many thousands of dollars, and we have seen such a necessity arise for a church only 30 years old (the architect's widow sent all his drawings to the dump on the advice of her attorney).

4. Compared to most century-old structures we have worked with, this building appears in fine to good condition as an overall average. However the building complex is quite large, so even "minor" items in terms of the overall building will be costly because there is so much of everything.

5. About 2 or 3 decades ago, before knowledge was widespread about masonry preservation and restoration, all the mortar joints were repointed with a hard, brittle gray portland cement rather than the original mortar of buff-colored resilient hydrated lime and sand mixture. Luckily, the hard mortar was apparently merely troweled onto the top of the weathered lime mortar instead of being cut back into the stone joints about 1 inch deep per usual "tuck-pointing" practice.
This providential "mistake" prevented the hard mortar from causing widespread and serious spalling of the soft sandstone masonry, as would have occurred if the hard mortar had penetrated into the stone joints. Some spalling has occurred, due probably to the combination of the hard mortar in temperature-stress movements of the soft masonry, and the trapping of water inside the stone on top of the hard joints, with spalling of the stone occurring in freezes. As evidence, a plant was observed growing out of the bottom of a stone above a mortar joint, at the west wall of the Parish Hall. Severe spalling had occurred here. Moisture is obviously being trapped in the porous, soft stone above the relatively non-porous and hard mortar.

"Stone consolidates" are available, but we have reservations about their use unless their porosity and resilience can be demonstrated to match the sandstone. One such company whose products we have used with success (1860 Church of the Nativity, Episcopal, in Huntsville) is "Jahn" of Holland. They have stone repair products which contain no polymer or acrylic and which are formulated to be as soft as the stone (our application was concealed grouting of internal voids in soft brick walls). "Cathedral Stone" of Washington D.C. does this type of work and are an Alabama company in that they own a limestone quarry in Russellville and a marble quarry near Sylacauga.

There are professional specialists in stone conservation and restoration as well. If the budget allows, it would be desirable to consult with one. One whom we have had brief contact (1860 Memphis and Charleston R.W. Depot, Huntsville) is Norman Weiss of Columbia University, also mentioned in Camille Bowman's report of November, 1992. Mr. Weiss seemed very knowledgeable of this field. His training is as a chemist.

Since the hard modern mortar is apparently merely plastered onto the face of the original eroded mortar there is a chance that it can be removed without significant further damage to the stone and replaced with mortar of the original color, softness and profile. This seems worth an experiment in an inconspicuous location.

The gray color of the modern patch mortar greatly detracts from the beauty of the original masonry, as evidenced by the areas under the west arcade where the original buff-colored mortar can be seen.

Where the gray mortar is thinly smeared on the stone faces it may be possible to gently hand-sand it off without altering the stone surface (no power-sanding and no pressure-blasting). An experiment could be made.

Several sandstone arch keystones and voussoirs have eroded mortar joints and several have slipped downward as much as 3/4 inch. If feasible, slip them back in place. Properly tuck-point the joints in any case.

Telephoto views of the brick chimneys show many deterioriated mortar joints and no cap-flashings. The joints should be neatly and properly raked, cleaned and tuck-pointed with lime mortar, and the caps completely topped with flashing if the flues are no longer active (flashed if active).

6. In some areas, the tower in particular, hairline cracks in the sandstone were apparently filled with a sealant, perhaps silicone, at some point in the past 20 or 30 years. Some of the sealant was smeared onto the stone faces. This material has now oxidized to a bright white color, defacing the stone. Perhaps gentle hand-sanding can also remove this surface material without altering the stone (except for temporarily clean spots).

7. Some areas of the stone, notably the crenelated walls at the arcades and the north wall of the Sacristy wing, are stained and soiled gray. The soil or stain is darkest below the lowest part of the crenelations. Since the soil wash-off would be about equal at both the high and low points of the crenelations, the explanation for this soil pattern needs more investigation. It may have something to do with the fact that more water seeps into the wall at the edges of the lower cap-stones than at the top cap-stones due to the detail and the lack of flashing.

   If the cause can be determined and alleviated, the stones can then be gently cleaned (no high-pressure wash, no abrasive cleaners).

8. Soot and soil can promote stone deterioration. It would be desirable to gently clean all the stonework.

9. Chemical sealers for stone are not advisable. They may trap moisture in the stone, causing spalling, and they may discolor or cause other serious problems (based on experiences in preservation). In any event, they only last for 2 to 6 years and thus aren't worth the cost even if they could be shown to be effective and not harmful.

10. Sandstone varies considerably in its hardness, both from stone to stone and even within a stone. Some stones now have soft strata eroded to a depth of about I inch or more where the bed is horizontal. Others have faces eroded or spalled-off where the bed is vertical. Probably it is best to leave these stones in place and do what can be done to reduce water penetration by improving flashings and joints. On this brief tour, only a few stones (S.W. corner of Parish Hall) appeared to be spalled to the point of needing replacement.

    It is traditional to lay stone with the bed horizontal, but we are left to contend with the situation here where many or most are laid with the bed vertical, which makes freeze-spalling easier by admitting water into the soft vertical strata via the horizontal joints.

11. A comparison between the c.1888 photographs, the architects east elevation drawing, and current conditions (such as buried steps) shows the usual present condition at historic buildings, which is the unintentional raising of the soil around the building at the rate of about 6 to 12 inches per century due to landscaping "improvements". This has buried the foundation vents, bottom steps, and created a water dam around most of the perimeter of the building, causing serious problems by trapping roof runoff and ground water against the foundations of the building, causing water (not "moisture" but "water")to penetrate the foundation and vents and rot the ends of the floor joists (and probably some flooring) which bear inside of pockets in the foundation masonry in the standard 19th century manner. This plentiful moisture may have promoted insect damage higher up in the building as well. Actual "gullies" are present in the crawl space soil near the outer walls.

It appears in the crawl space that many if not most of the Sanctuary floor joist ends have rotted and the joists have subsequently been propped up by stacks of unmortared concrete blocks placed on the crawl space soil. The other parts of the building complex are probably in a similar state. This should be improved.

In addition, it appears that the underground roof drains are either stopped up and/or disconnected from the downspouts, the usual condition we find. The downspouts are thus dumping water into the dammed area that exists around the building. The stopped downspouts are causing gutter overflow, thus washing water down the walls, rotting sashes and harming the masonry and leaded glass. The disconnected downspouts are similarly damaging the walls.

Step one is to correct the site drainage so that any water from the roof or sky is drained immediately away from the building, preferably by lowering the site about 6 inches to 1 foot to restore not only the original appearance of the building but its original proper drainage. In locations where restoring the original grade elevations may not be possible, alternative drainage methods must be devised. Underground pipes from the downspouts are not recommended for we have yet to find any that are not stopped up. We abandon these wherever we find them based on these experiences. In order to devise a drainage plan it is necessary to have a topographic survey of the area within 50 or 100 feet (depending on ground-slope) of the building.

The raised soil has left the originally-exposed foundation vents buried in the soil, in small "wells", limiting their venting capacity. In at least some cases these vents have in addition been stopped-up in an attempt to keep gutter-overflow water out of the crawlspaces. All these vents need to be reopened, and the drainage corrected.

12. The drainage systems of the many various roofs and roof, parapet, and flashing conditions must be surveyed and corrections and improvements devised. Spillage of the "Boston" or "Philadelphia" type gutters is mentioned at 11. Roof leakage and subsequent rot was seen at the south arcade. Flashings at crenelations, parapets etc. need improvement (flashing is absent at the crenelations).

The entire building, inside and out, crawl spaces, attics and yards, should be methodically toured during a hard rain to see what is happening with roof water, site water, roof drainage systems, roof leaks, water entering crawl spaces or basements, etc., and the problems noted and located on a plan sketch.

The metal basement access scuttle doors are detailed so that a 1 inch by full length gap by the wall admits water into the basement, particulary since the gutters are spilling over due to downspout blockage or leaks.

The exposed basement stairwell at the west end of the S.E. classroom building appears to be admitting water directly into the basement. No drain was seen, although a stopped-up drain may be under the leaves. A shelter here would necessarily be awkward in appearance no matter how detailed. A dry-well in the bottom of the stairwell would be a safety factor, plus unstopping the drain if it is present. This will be a continuing maintenance item.

13. Roofs

The original steeply pitched roofs were gray slate, as evidenced by shards that remain in the attic (although in this period multi-colored geometric slate patterns were sometimes used. The architect's elevation drawing indicates a single shade). The present steep roofs are a 30 year weight "G.A.F. Timberline" gray textured composition shingle. It is an easy matter to replace individual missing or broken slates (unbeknown to many roofers). It is to be regretted that the slate roof is gone. It is generally cheaper to maintain a slate roof than to replace composition shingles every 25 or 30 years. This firm repaired the slate roof on the c.1890 Temple B'nai Sholom in Huntsville 15 years ago, and had we substituted regular composition shingles for the slates, the 1978 roof would already need replacement. Slate roofs are still available if this is a viable option.

The architects elevation view of c.1888 shows that the slates were graduated in size to become smaller as they progressed up the roof slopes; a subtle, beautiful and frequently-used device for slate roofs.

As an aside, this c.1888 drawing, by its shading, also appears to show a round tower rather than the square tower that was built. This may have been an esthetic change or a cost-reduction factor, or else is a misleading shading of the drawing.

The flat and nearly-flat roofs are some type of either built-up or single-ply sheet roofing (without gravel topping). They appear to be relatively new and in good condition except for the flashing at adjacent higher masonry walls and at the crenelations in particular. A new shed roof configuration (a modification) S.W. of the Administration Building is spilling water over the north stone wall of the sacristy/choir wing and should be corrected. This has badly stained the stone wall.

Asbestos-cement shingles sheath a large shed that is behind the tower. We suspect this shed may not be original (?). The asbestos is an environmental consideration. There may be some asbestos insulation in the building as well (?).

14. Some wood deterioration at exterior trim, sashes, the small south porch at the C. R. building, the porch west of the Administration wing etc. was observed, along with technically and historically inappropriate or makeshift repairs, and paint deterioration. These areas must be surveyed and detailed for proper restoration/repairs.

We note on Camille Bowman's November 1992 report the recent removal of a wooden porch. The two remaining wooden porches, the south one in particular, are outstanding in design and should be restored. If the original details of the removed porch (Parish Hall

north door) can be retrieved, it should be carefully replicated. These are important elements of the historic building complex.

We do not recommend the use of epoxy in the repair of exterior wood because moisture will accumulate in the porous wood next to the non-porous epoxy, thus promoting further rot. This is not only common sense but we have worked with a church where this had occurred next to previous epoxy repairs.

An important item pertaining to the exterior wood trim (not understood by many painters) is that where the prolonged absence of paint has allowed the surface of the wood to oxidize to a gray film, this gray film must be gently sanded just enough to remove the film without altering the profile of the trim. Paint will not adhere to a gray oxidized wood surface. This is the most common problem we see in paint on historic buildings. Preparation for re-painting is all-important and the entire effort and cost is wasted if it is not done properly.

We also frequently see latex paint mistakenly put directly on scraped bare wood places. Bare wood must be spot primed with oil base primer. Old cracked and flaked paint must be thoroughly scraped, feather-edged, cleaned and reprimed. Torches must not be used to remove old paint (lead vapors, fire probability, etc). See the National Parks Service "Preservation Brief 10" for more information.

15. The preservation and restoration of the leaded, stained and painted glass windows is best left to an independent professional in this field rather than a sales representative. A general principle in restoration is to not "fix" anything that does not really need it, and this seems particularly appropriate to naturally-fragile leaded glass panels. However, where the wood surrounds are rotted (at least some are due to roof-water spillage) the glass may have to be temporarily removed. One such glass professional is Julie Sloan of McKernan, Satterlee Associates, Inc., Tonetta Lake Road, Brewster, New York (914) 278-2187 (1990 address), who is also mentioned by Camille Bowman.

Sheet-plastic (probably plexiglas) has been tightly sealed over the stained glass exterior. A tight seal traps condensation against the glass, lead cames, and wood frames, causing deterioration of various sorts. If used, such coverings must be vented top and bottom (like any storm window) to relieve vapor pressure and allow trapped moisture to escape without condensing against the historic windows and wood frames. See Julie Sloan's article of Spring 1990 in the "PSG Restoration Report" for further information, attached.

If plastic is used to cover the windows it should be a type with a hard surface that resists etching. Tempered laminated glass is an option.

16. Since the "Boston" (or "Philadelphia") gutters sit on top of the roof eaves, there is a possibility that gutter leaks or overflows may have allowed moisture into the top of the sandstone bearing walls which support the wooden roof trusses. This moisture may have caused deterioration and encouraged insect damage in the wooden roof trusses, particularly at the bearing points on the stone. This should be checked in at least several places. One method our office has used to do this (1860 Church of the Nativity, Episcopal, Huntsville) is to use a forestry tool called an "incremental borer". This tool can extract a pencil-sized core of wood from the interior of the large truss members to see the condition of the wood inside. It requires only a ± 1/2" diameter hole which does not

weaken the truss and can be drilled in an inconspicuous location and then plugged with stained wood. X-ray techniques are also available at greater cost and complexity.

17. Paint:

As to original colors, it would be desirable to have a paint analyst such as George Fore or the SPNEA do a paint analysis. Both of these firms have worked on our projects ((Fore = 1828 Belle Mont, Tuscumbia, SPNEA = 1860 Jemison House, Tuscaloosa). Camille Bowman has offered some help in this. It is desirable to have this as a record , and to carefully duplicate the colors in repainting the exterior and the primary interior spaces.

Camille Bowman has commented on the clear varnish on the wooden exterior door faces and I agree. I doubt very much that these doors originally had clear varnish, and in any event I've never seen this finish perform on the exterior. More usual for the 1880's period would be stain, and perhaps varnish. The paint analyst could probably help on this, as probably some minute parts of the original finish remains in joints etc.

Preparation for exterior painting and its attendant woodwork repairs and preparation is discussed above.

The paint-color pattern on the organ pipes is particularly spectacular. It deserves special attention in the preservation scheme.

Paint has generally peeled at the galvanized gutters, leader heads and leaders, indicating the probable lack of proper cleaning of the mill-oil film from the new metal, and perhaps also the use of an incorrect metal-primer. There is now no cure for this except to keep on (proper) painting until all the old paint is finally off. The gutters also, I seem to recall, are not painted on the inside. If not, they typically rust-out in only 12 to 14 years. They should be cleaned and properly primed and painted 3 coats of (1) galvanized primer (2x3) oil base rust-resistant "long-oil" paint.

18. Floors:

The beautiful encaustic tile floors, interior and exterior, appeared to be in mostly good condition with only a few minor tight cosmetic cracks. Deterioration of the wood below it may be present at places and must be corrected, preferably from below without disturbing the tile.

The wood floors should be checked with a sharp probe for concealed decay since we know that the joist-ends below have suffered considerable decay due to rot and insects encouraged by the trapped water by the building and the water washing down the porous stone walls from the stopped-up or leaking roof drainage system.

A section of wood floor in the choir area had dropped about 1 inch. There may be more such areas. See item 11.

The wood floors should not be sanded. Sanding thins the groove flanges, causing breakoff of the flanges and loss of the irreplaceble original floor. Sanding also requires temporarily removing the pews, which is not advisable.

19. The modern concrete block wall by the south porch traps water against the building, serves no apparent purpose, and should be removed.

20. The various mechanical and electrical devices that are on or near the building walls should be visually diminished by painting them the general coloration of the wall they are on, except a couple of shades darker since metal reflects more light than stone, and paint fades. Experiment to find the best shade, probably close to Sherwin Williams SW2047 or SW2048.

The metal fire escape above the south porch, if it cannot be replaced by a concealed internal exit, could be similarly painted. Open metal fire escapes are no longer acceptable to the Standard Building Code, although perhaps this one would be "grandfathered". See item 22.

21. Planting

Note that the c:1888 elevation drawing and the c.1888 photo shows no "foundation shrubs". The few shrubs shown on the architect's idealized-view drawing are well away from the building, bordering the sidewalks. The fashion for foundation shrubs came in with the bungalow style of the early 20th century. Landscape historians refer jokingly to foundation shrubs as "bungalow bushes". These bungalow bushes create a non-historic image and contribute (along with their continually added mulch and topsoil) to the trapped site water and consequent rot problems in the wood flooring, basement and crawl spaces. It would be historically and technically desirable to consider relocating the shrubs to a more appropriate place so that the water and rot problems can be alleviated and a historic appearance restored.

Numerous tree-saplings show on the 1880's-90's photographs. These trees are now a century old and are either dead and gone or are near death. A new tree-planting program is needed as soon as the site re-grading is done. These replacement trees should be types that mature to a 75-85 foot high shade tree. Such plants as dogwoods are merely large shrubs, and what is needed are shade trees. As these trees grow, they should have their lowest limbs pruned-off each winter so that in 20-30 years a canopy of leaves exists, with the lowest limbs about 20 feet above the lawn. Note that the few remaining original trees were thus pruned. This is a simple idea that has been mostly lost in recent decades, and most trees now result in a jungle of low limbs and leaves due to the absence of this bottom pruning. We have even talked to some who believe that the limbs rise as the tree grows!

The historic photos and remaining stumps and trees should be studied, for replication of the original tree-plan and types.

22. Codes:

Both codes involved here (Standard Building Code and the Life Safety Code) recognize that both "historic" buildings and "existing" buildings usually cannot be upgraded to precisely meet the letter of the current codes, and they thus allow "equivalencies" to attempt to meet the intent of current codes ("as nearly equivalent---as practical---in the judgment of the authority having jurisdiction" Life Safety Code) ("----not mandatory for existing buildings identified as Historic Buildings---judged by the Building Official to be safe and in the public interest"---Standard Building Code). In addition, the S.B. Code

does not demand that all existing and unaltered aspects of a renovated building be brought up to current codes (per 101.5) and allows the Building Official or Fire Marshal to judge the extent of needed revisions. As a rule of thumb, most Building Officials would require the entire building to be brought up to code if the renovation cost exceeds 50% of the current modern replacement cost. This will not be the case here.

The "Americans with Disabilities Act" specifically exempts church-related structures, although the Standard Building Code has handicapped access requirements.

Where codes can be met on a practicable basis, they should be, to make the complex as safe as practicable. Handicapped access should also be improved as is practicable without compromising the historic aspects of the building. For example ramps should not be put at the principal entry steps in a location that disfigures that entrance. The existing ramp at the parking lot is inconspicuous, and perhaps should have a single handrail on each side, of small (1"sq.) section to be inconspicuous.

23. Electrical:

All electrical systems should be surveyed and evaluated in terms of technical condition, safety and adequacy.

a. Smoke alarms - type, effectiveness, location, condition, "hard-wired?". Wired to Fire Department?

b. Fire (heat alarms - type, effectiveness, location, condition, "hard-wired?". Wired to Fire Department?

c. Security alarms - type, effectiveness, location, condition. Wired to Police Department?

d. Lighting - interior and exterior, and site lighting. Esthetics and function.

e. Wiring, conduits, junction boxes, support of wiring in crawl spaces etc.

f. Panels, "gutters", cutoff switches

g. Removal of "dead" wiring and devices

h. Telephone/intercom system

i. Convenience outlets (number, location, grounding, GFI)

j. Light control (switch locations, dimming)

k. Transformer - disfigures the site. Screen, or paint dark forest-green (Martin Senour W85-1063). Plant with hollies or similar evergreen screening.

l. See notes above re paint-hiding of various devices on or near the building exterior walls.

24. Mechanical Systems

Survey and evaluate all systems for adequacy, controls, function and condition

a. Heating and Cooling units and duct work, support and insulation of ducts

b. Control systems

c. Exhaust systems (restrooms, kitchen, etc)

d. Painting (for rust) and paint-hiding of exterior components as described above.

e. Screening of exterior condensing units with plants etc.

25 Plumbing:

Survey and evaluate plumbing systems for condition and adequacy.

a. Fixtures (adequate number and type? Handicapped provisions? Condition?)

b. Supply and waste lines. Properly supported? Waste lines set to proper slopes? Hot water lines properly insulated? Any asbestos insulation?

c. Water heaters - insulation adequacy and types? Condition?

d. Hose-bibb locations adequate?

e. Grass - sprinkler system?

f. Adequate fire-hose connections at streets and in buildings? Condition of hoses etc. (if any)?

26. Tenative Priority

A. Water problems of all types: (No particular order. All = equally important)

a. Repair of roof drainage system (gutters, downspouts)

b. Flashing improvements (particularly at crenelations and parapets)

c. Positive drainage of water from the building base and lowering the soil around the building to expose the foundation vents.

d. Reopening the foundation vents.

e. Keeping roof water off the windows and stone walls (item "a" related).

f. Keeping roof water and ground runoff water out of the basement and crawl spaces (items "a" and "c" related).

g. Keeping water out of the stone joints (proper pointing) and thus reducing further freeze-spalling of the stone.

h. Finding and correcting any roof leaks.

i. Improve drainage of the S.E.-C.R. building exterior west stairwell.

j. Proper preparation and painting of exposed (weathered) wood and galvanized metal (rust).

k. Replacement of clear varnish with pigmented stain at the exterior wood doors.

l. Preventing water entry into the basement and crawl spaces through scuttles, sprinkler service pipe, sunken vents, dammed-water penetration of stone and vents, sunken stairs and ramp, etc.

m. Repair of rotted portions of exterior wood at sash-frames, porches, doors etc., and proper repainting.

n. Repair of severely deteriorated stone faces with "dutchmen" or perhaps repair materials such as "Jahn" material to reduce further stone decomposition.

B. Safety considerations

a. Structural investigation and repairs

b. Electrical investigation and repairs, including fire protection (detection and alarms)

c. Mechanical investigation and repairs, including fire protection (automatic cutoff on blowers)

d. Plumbing investigation and repairs, including fire protection (sprinklers, hoses)

e. Handrails, ramps and similar hazard-items

f. Code study and code-upgrade items

C. Preservation-Restoration Items

a. See priority item A.

b. Preservation-restoration of such items as pews, chancel fittings, stained glass, wood floors, all wood and stone items not mentioned at "A", encaustic tile floors, plaster, doors and sashes, hardware, etc.

D. Functional Improvements

Minor rearrangements of such items as electrical lights and devices and plumbing mechanical systems, parking, walks, signs, circulation within the building, etc.

E. Esthetic (non-historic) Improvements

a. Such items as hiding conduits, condensers, transformers and similar devices, by paint or physical or plant screening.

b. Improvements to landscaping, including tree-planting.

c. Refurbishment of non-historic areas such as offices or classrooms, where preservation is not an important consideration.

Respectfully,

Harvie P. Jones, FAIA
HPJ/tm

cc: file

JONES & HERRIN

Architecture/Interior Design

June 16, 1993

Mrs. Rebecca Burt
727 Hillyer High Road
Anniston, Alabama 36201

Re: 1888 St. Michael's Church Restoration
Anniston, Alabama
Project No. 93049

Dear Mrs. Burt:

Per our discussion on June I5, following is a general procedure on attacking the refinement, definition, planning and execution of the preservation and restoration items outlined in Jones & Herrin's notes of June 2, 1993 on the St. Michael's Church restoration.

1. Survey and correct ongoing water-damage problems (primarily due to roof-drainage system and site drainage). This involves roofing, flashing, gutters, downspouts, and altering the site so that water is no longer trapped against the building. At least some landscape features will also be involved since the site has been built up 6 or 8 inches higher than the original grade, trapping water by the building.

   Survey and correction of at least some building structural and decorative conditions will be involved, due to leaks into the roof framing, floors, walls, and damage to some windows etc.

2. Survey and correct items that are high on a list of things that apparently could endanger the building or its occupants, such as wiring, code factors, structural items (as far as can practicably be determined without an exhaustive investigation of all visible and hidden elements and complete structural re-calculation. It is not possible to perform this item to the degree that safety can be assured since many conditions are hidden, no original plans are available, and the present condition and strength of wooden or stone elements cannot be determined in the event of hidden deterioration.)

3. The other categories of work listed in the report (Preservation-restoration, functional improvements, and esthetic improvements) would to some degree be involved in item 1 and 2 in order to avoid back-tracking and spending money twice on the same items.

4. As investigations proceed, it is inevitable that other items will become apparent that should or must be addressed. Budgeting should anticipate this. "Planning" can only go so far in a situation as amorphous as this. On a brighter note, it has been our experience in 25 years of restoration that the problems are generally less than anticipated rather than vice-versa.

5. An essential element will be a contractor, subcontractors and craftsmen who are part of the team (owner, architect, contractor) rather than just passive employees. The contractors and craftsmen, who are at the site constantly, will observe conditions that the architect or owner will not be aware of that need attention. Good contractors and

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craftsmen will suggest solutions that may be better, easier or cheaper (but as good) as those devised by the architect (these suggestions should be reviewed by the architect, who will be aware of other ramifications that would cause problems). For this reason it is generally best to select contractors based on qualifications and interest in the field of historic structures and in this historic structure in particular. Open bidding should not be used. Some clearly-definable items may be able to be competitively bid to selected pre-qualified bidders. Items that involve unknown hidden conditions such as wood decay cannot reasonably be bid since any quote would be guesswork. A negotiated fixed-fee for the contractor, plus auditable expenses, is a better and generally cheaper way to do this work, again using a properly qualified and conscientious contractor for restoration work.

This arrangement also reduces the architectural cost because in "bidding", the architect would have to spend hundreds of hours in an attempt to pre-define every item in plans and specs, not a likely event due to the many inaccessible and hidden conditions. Many change orders would result. A contractor who guessed low in the bidding would be likely to try to make up his shortage in the change-orders, negating any theoretical advantage to competitive bidding.

6. Architectural costs would, as heretofore, be on a time and expense basis. Based on what we have seen and done so far, and on item 5 being the case, a best guess to perform architectural planning. services on item 1 would be about 50 to 100 hours plus some "administrative" time and expenses, or perhaps $7,000 to $14,000. The partial topographic survey and "rainwater disposition" survey would be furnished to the architect by the owner.

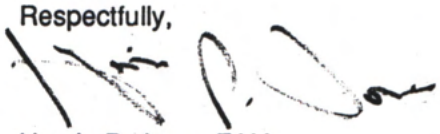
   Item two would probably be a similar amount.
   Item three would probably not involve the architect to any high degree unless significant changes or improvements are anticipated.

   Another method of guessing at architectural costs is that for church restoration, the cost would generally be about 10% of the restoration cost. This is likely a closer method than the above.

7. Construction (Restoration) costs must be developed as the project is defined, preferably with the aid of a selected contractor and subcontractors.

Please let me know if I can answer other questions at this time.

Respectfully,



Harvie P. Jones,FAIA
HPJ/tm

cc: Mr. James W. Curtis
HPJ
file

JONES & HERRIN

Architecture/Interior Design

July 28, 1993

Mrs. Rebecca Burt
727 Hillyer High Road
Anniston, Alabama 36201

Re: St. Michael's Church Restoration
Project No. 93049

Dear Mrs. Burt:

In reference to your letter of 20 July, following is the work we have performed on St. Michael's per our understanding of your requests.

1. April 26:

   A. Met with you at site, toured all buildings, except interior of S.E. building, toured bell tower and two roof areas, discussed problems observed and possible remedies. Took about 75 photographs for detail reference. Discussed water problems with custodian. Actual time - 12 hours. Charged time - 6 hours

   B. At this meeting I was requested to furnish for the Vestry an outline of the problems thus far observed, and in some cases (like site and roof drainage etc.) general approaches to solutions. This was provided in item (3) below.

   C. I was also requested to contact the Civil Engineer to give him the detailed needs for the topographic survey to be used in planning to correct the site drainage.

2. May 1 & 2 (Saturday and Sunday):

   A. Sorted, mounted and annotated 25 pages of approximately 100 photographs in loose-leaf binder for reference in writing the requested outline of restoration needed and in the later planning of the roof and site drainage corrections and other restoration items. ± 2 hours

   B. Read reports by Elizabeth Brown and Camille Bowman ± 15 minutes. Charged time - none

3. April 25:

   Drafted the requested "preliminary outline notes", studying the ±100 annotated photos and my notes for reference. 13 typed pages. 7.25 hours

4. April 26:

   Proof-read, edited, amplified and revised the 13 page first draft. 2.5 hours

104 Jefferson Street • Huntsville, Alabama 35801 • 205/539-0764 • Fax 205/534-2289

June 3 & 4:

Proof-read, edited, amplified and revised the 13 page second draft, plus telephone call with Elizabeth Brown. Proof-read the third and final draft. - 1.75 hours

5. June 14:

2 telephone calls, conference with Mrs. Burt
2 telephone calls, conference with Bailey Engineering regarding topographic requirements
4 page letter to Mrs. Burt, plus proofread and edit
Review 2 June notes to prepare 4 page letter - 3 hours

6. July 26 & 27:

Read your 20 July letter, draft, proofread and edit 27 July letter.
Time spent: 2 hours of my time and 2 hours of administration time.
Time charged - 0 hours

7. Various dates:

The administration time involved delivering film, retrieving photos, typing, bookkeeping, setting up file, getting binders, wrapping and mailing and such tasks.

I'm sorry the billing was confusing. Bills are sent monthly, like in any business. This work occurred during two billing periods.

As stated in paragraph 2 of the June 2 letter, "the purpose of this brief survey is to assist the St. Michael's Church in a plan of procedure". I am of course professionally obligated to list and in some cases to discuss in any such requested report all the needed work items that can be seen at that point.

The list helps your Vestry in deciding on a priority order, based on (1) safety (2) stopping damage (3) restoring damaged or lost items (4) code compliance (5) desirable improvements. It was never anticipated that you could do all the listed items in the near future, but you need to have an orderly plan to minimize back-tracking costs and omission of important items, as we discussed at the site.

The needs of this very large and complex group of 4 buildings is great and in some cases difficult of solution.

We are happy to have donated, to date, 10 hours of my time and 2 hours of adminiministration time to your efforts. I regularly donate 5 to 10 hours every week to various local and statewide preservation efforts, including partly on most Saturdays, Sundays and during "business hours" at the office.

I hope this clarifies your questions. Please feel free to call, if not. Best wishes on your efforts to care for this fine building group, which is certainly among the top rank in Alabama church architecture.

Respectfully,

Harvie P. Jones,FAIA
HPJ/tm

cc: file
HJ

JONES & HERRIN
Architecture/Interior Design

October 9, 1995

Mrs. Rebecca Burt
727 Hillyer High Road
Anniston, Alabama 36201

Dear Mrs. Burt:

Attached for your interest and the St. Michael's history files is one precedent (there are others) for the round Norman Tower that is shown on the architect's preliminary drawing for the church (copy attached). Either the round tower cost too much or else the congregation didn't like it, for of course it is built square.

I'd appreciate it if you pass a copy of this on to the lady in Birmingham who did her thesis on St. Michael's.

I hope things are going well for this beautiful church.

Respectfully,

Harvie P. Jones, FAIA
HPJ/tm

copy: HJ

attachments

104 Jefferson Street • Huntsville, Alabama 35801 • 205/539-0764 • Fax 205/534-2289

English Parish Churches

Hutton & Cook

Thames & Hudson pub. 1989

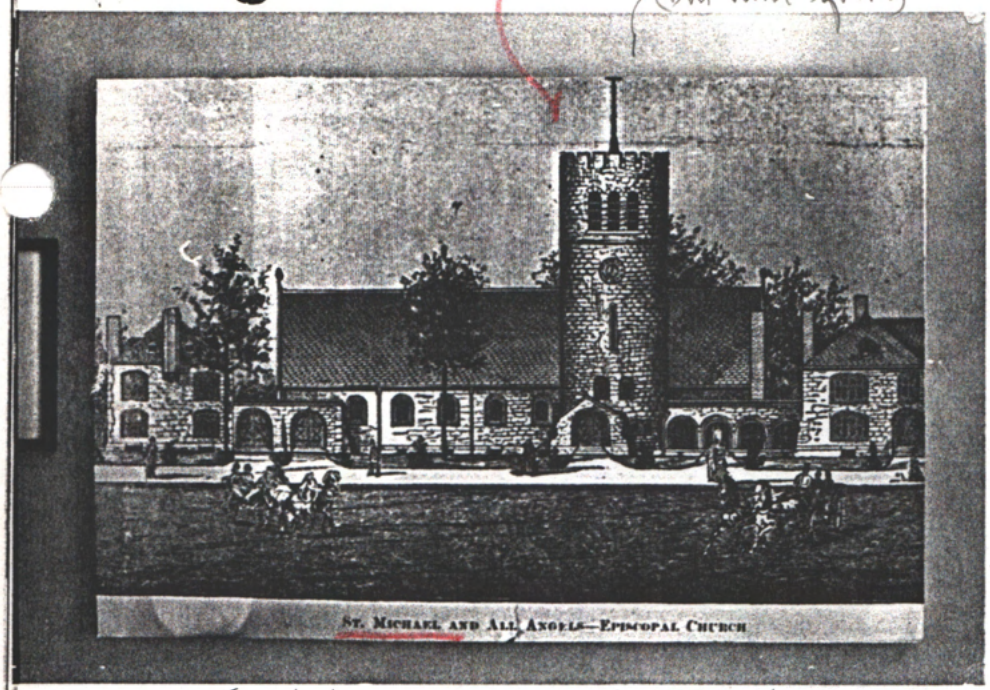
21 St Mary, Haddiscoe, Norfolk

(Norman, England)

23 (opposite) St Mary, Patrixbourne, Kent

A precedent for the proposed St. Michael's round tower (built square)

Round Tower (but built square)



St. Michaels 1848 photo

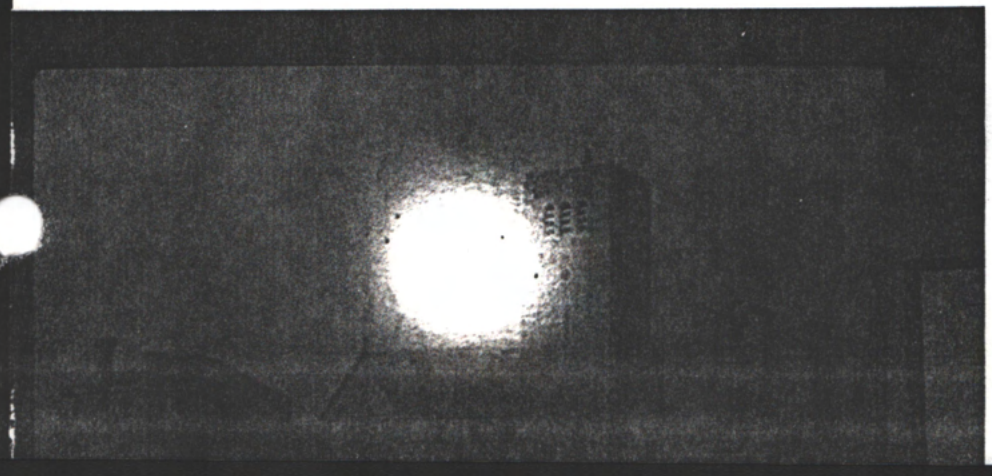
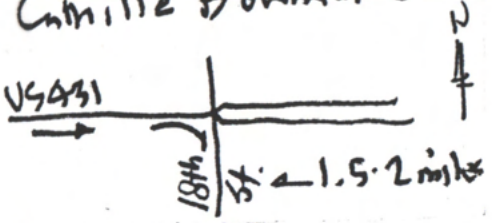


Photo apparently taken after completion

Mon., W. 8 AM
Anniston, 10:30 AM
St. Michaels Episcopal
Rebecca Burt
Cathille Bowmar

727 Hillyer High Rd. 36201
205-237-5876 Anniston, Al

2201 Ayers Drive
Anniston Al 36201 -236-5455



93049

portrait and an early altar cloth. The Saint Michael window is here. The other stained glass windows were added as memorials after the church was finished and follow a plan which reveals the important events in the life of Christ as recorded in the Gospels.

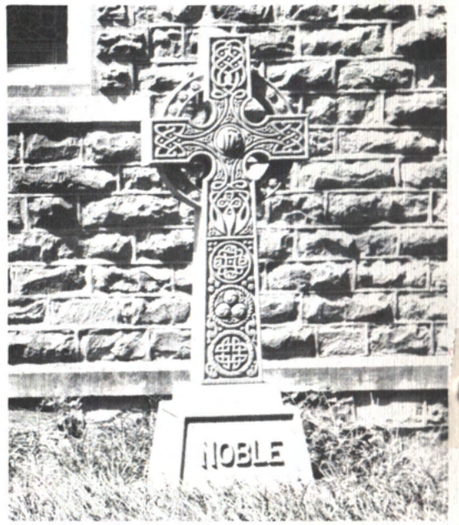
On the east side of the church, the subjects cover the childhood of our Lord. "The Annunciation," "The Madonna and Child," "The Epiphany," "The Presentation in the Temple," "The Flight into Egypt" and "Christ Among the Doctors." The back wall of the church is blank, symbolical of the eighteen years of no knowledge of the life of our Lord. On the west side of the church the subjects are taken from our Lord's ministry. They are "The Baptism," "The Transfiguration," "The Entry into Jerusalem," "The Last Supper," "The Crucifixion," "The Resurrection," and "The Ascension." In the chancel are windows depicting "The Pentecost," and "Christ Blessing the Children."

All the windows except the first two on the east side were made by J. and R. Lamb Company of New York. Highly prized are the Tiffany Madonna and Child and the Rose window high above the south entry.

Other items dear to the members of St. Michael's and of interest to visitors are: the pulpit added in 1955; the lectern with its stately bronze eagle; the marble baptismal font, given in memory of the wife and three small children of the donor and placed near the east door to symbolize entrance into Christ's church. The imposing ninety-five foot bell tower rises above this east entry, which houses a case containing flags of the states; the processional crosses, one a Coptic cross presented to a former rector, Dr. Earl Ray Hart, by the Ethiopian Emperor Haile Selassie; and the original wooden clavier by which the chimes were played manually before they were converted to electrical operation in the 1950's. The twelve bells of the peal high in the tower were cast in Baltimore, Maryland, by McShane and Company and weigh all together 17,715 pounds, the largest 4,350 and the smallest 275. Each is inscribed with the name of a Noble family member and a Bible verse.

The magnificent pipe organ was installed in 1889 by Henry Pilcher and Sons of Louisville, Kentucky. One of the main frames, which still supports parts of the Great windchest, is marked "To C. A. Noble, Anniston, Alabama." Originally, the instrument was a very large two-manual organ built to English specifications of the highest possible standards. It had mechanical or tracker acti[illegible] throughout, with the wind being furnished by a wa[illegible] motor/bellows machine in the tower. One parishioner has childhood memories of coming to St. Michael's on Saturday mornings to play in the water which was exhausted at the base of the tower as the organist was practicing.

This organ went unchanged until the early 1950's when it was rebuilt by the Schlicker Organ Company of Buffalo, New York. Parts of an M. P. Möller instrument were used to provide electro-pneumatic action, and a third manual was added. At this time,



the instrument power was also converted to a modern, five horsepower Spencer organ blower. In 1982, Mr. William Barger of Chattanooga, Tennessee, did extensive rebuilding, and a new console was added. Unfortunately, he had to duplicate much of his work in 1986 because of disastrous water damage from a newly installed sprinkler system. At this time, other projected additions were included so that St. Michael's organ is now one of the finest in the Southeast, with 2,715 pipes and 73 stops.

The complex of buildings has served many functions through the years: residence for the rector, choirmaster; recital hall; parish school; medical clinic; meeting rooms for various civic groups; East Alabama Hospice; Alabama Shakespeare Festival; Anniston's summer Festivanni; and many other dramatic, dance, music and art programs. The St. Michael's Community Services Center, located across the street from the church, is a social service program of the church and was incorporated in September, 1987. In keeping with Christian teachings that we are all called to a ministry to give to everyone as he has need, the parishioners of St. Michael's voluntarily give of their time, talent and treasure to the operation and funding of the Center which includes a free medical clinic as well as guidance service to those in need of assistance with clothing, shelter, food, etc.

Of special note in the Assembly Room is the series of pictures showing the history of religion in England. The seventeen in this set were part of a series of visual aids the Church of England developed in the nineteenth century for teaching and, as restored and placed here, may be the fullest set of these historic lithographs extant.

The grounds with an interesting variety of trees, especially the horse chestnut in the garden adjacent to the administration building (the seeds for which were reputedly brought from the Champs Elysees by and Episcopal chaplain serving Ft. McClellan), provide a delightful place for strolling and picnicking in season.

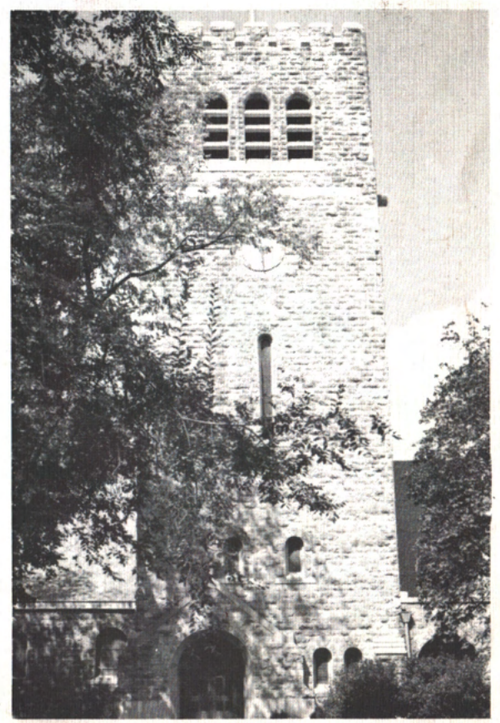
The Parish of St. Michael and All Angels has through the years lovingly worked on the buildings and grounds to preserve the beauty, enhance the comfort, and promote the use of this holy place. All who enter here receive a blessing, and all contributions and prayers are gratefully received.

The Church of
SAINT MICHAEL and ALL ANGELS
Anniston, Alabama

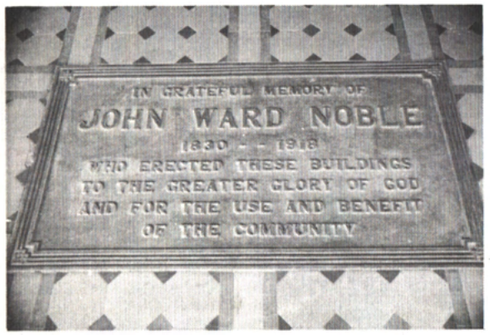
EPISCOPAL

The Church of St. Michael and All Angels stands today as a holy place for worship and admiration because of the vision and diligent endeavors of one of God's faithful servants, John Ward Noble. A simple inscription on the pavement of the porch reminds all who enter that he built this church for the glory of God and the service of his fellow man. In the east yard there is a Celtic cross above the graves of this man and his parents, James and Jenifer (Ward) Noble, and his wife, Alwera Sarah Abbott.

Selected as a state historical site, the beautiful structure has thousands of visitors each year and is listed in several tour guide books, including Baedeker's, Cook's and AAA. A Birmingham News editorial states: "No Alabamian can claim to have seen all the beauty of his state until he has gone out



. . . to see the church which John Ward Noble gave to his city, nor can any person of religious feeling . . . claim to have experienced all the worship of which his soul is capable until he has stood in St. Michael and All Angels at eventide and felt the beauty and grace of its vaulting interior lifting him Heavenward."



Other newspapers have spoken of St. Michael's as "A Bible in Stone" or as a "Legend-filled church" and a "tourist Mecca."

The city of Anniston was founded and developed in the years following the War Between the States by the Tyler and Noble families who had chosen the site to establish iron works. When it became apparent that Grace Church, the first Episcopal church established in the new community, would not accommodate all the family members and also the workers who came, primarily from England, to man the mills and shops, John Ward Noble asked permission from the Bishop of Alabama to organize a second parish. This was on June 2, 1887; on Michaelmas of the same year, the articles of association for the parish were signed.

The famous architect William Hulsey Wood, who had drawn the original plans for the Cathedral of St. John the Divine in New York City, was retained. Ground was broken for the complex of buildings June 11, 1888, and the cornerstone was laid on All Saints' Day of that year. On St. Michael's Day, September 29, 1890 (the birthday of the donor), the church was consecrated by The Rt. Reverend Richard Hooker Wilmer, Bishop of Alabama, as a gift to the people of Anniston and as a memorial to James and Samuel Noble, John's father and brother who had died in 1888.

Many features of the church witness to the Norman-Gothic influence of the churches in the Nobles' native Cornwall, although the hill on the chosen site precluded the possibility of positioning the church in the traditional east-west orientation. In so far as possible, local materials were used, and sandstone from nearby Rocky Hollow was conveyed on a narrow gauge railway built specifically for this purpose. Master stonemason Simon Jewell and another stonemason named Conybear were brought from England. They shaped and fitted every stone by hand, including those in the wall surrounding the church property.

Oak and long leaf pine were the wood selected for the interior which was completed primarily by English builders. In the nave they reproduced the traditional replica of the ship, the ark, symbolizing

the church's function in man's spiritual journey. Working from scaffolding, Bavarian craftsmen carved the crosses and other Christian symbols on the beams, including the angel heads which they skillfully positioned on the end of the pine corbels so that each one is angled appropriatly to face the altar.

The magnificent twelve foot altar of white Carrara marble and the reredos of brick faced with alabaster were shipped in sections from Italy and assembled on the site. The archangels Gabriel and

Raphael flank Michael in the niches surmounted by seven angels bearing symbols suggestive of events in our Lord's life. Delicate hand carved angels grace the oak screen joining the reredos on either side to form an ambulatory behind the altar.

Also of native oak are the pews in the chancel and nave with their trefoil mountings symbolizing the Trinity. The floor of the chancel and sanctuary is Alabama marble but the tiles used in the nave and cloisters were imported from England.

Few changes have been made in the church's interior although some diversion of function has occurred where the small chapel and sacristies are. The narthex screen was added in the 1950's to form an energy conserving vestibule. Here are displayed items of interest such as John Ward Noble's

Information regarding schedule of Services may be obtained by calling the Church Office, 205/237-4011. The Church is located on West 18th Street and Cobb Avenues.
Mailing: P. O. Box 122, Anniston, Alabama 36202

STAINED GLASS "PROTECTION" DANGERS

Protective Glazing

Stained Glass Restoration & Preservation — Published quarterly by *Professional Stained Glass* magazine
for those who care for churches & public buildings — Volume 1, No. 1 — Spring 1990

The white smudge at the left center of this panel used to be a lead came. When the protective glazing was installed, it was placed flush against the stained glass. Since the stained glass could not be sealed, water vapor infiltrated the cavity. In cold weather, it condensed on the lead and, in a period of less then ten years, turned the lead to powder.

PROTECTIVE GLAZING: HOW NECESSARY IS IT?

In recent years, there has been an increasing interest in the exterior protective glazing of stained glass windows because they are made of fragile and valuable materials. As they watched their heating bills rise, troubled owners of buildings containing stained glass, also blamed their stained glass windows instead of their at-

Traditional stained glass studios whose livelihood has previously been earned through architectural commissions have added protective glazing to their repertoire of services, finding it immensely profitable. As a result, many churches, synagogues, public buildings, and private homes have had their stained glass windows covered with various kinds of protective glazing, whether they needed it or not. Using air pollution, vandalism, and energy conservation as scare tactics, merchants of protective glazing have created a need where, in many cases, none exists. As a result, this theoretically obvious need for protective glazing has sustained large stained glass studios throughout the last twenty years, and is now promoted by the industry as a "state of the art" conservation measure.

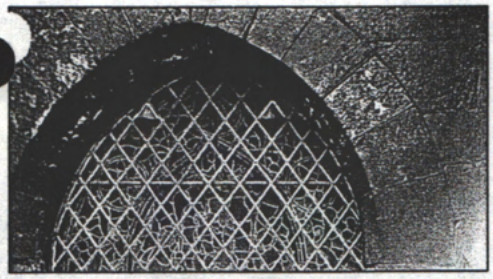
But how effective is protective glazing as a conservation measure for the majority of American stained glass? Does it really protect a window or does it create more problems than it solves? Is it necessary in each situation to which it is applied? How does an owner know if it is needed? These questions are not simple ones and do not have universal answers. *Every window and every installation is different.* Unfortunately, stained glass craftspeople too often are either not aware of this or choose to ignore it, installing the same type of protective glazing system in every situation.

AIR POLLUTION

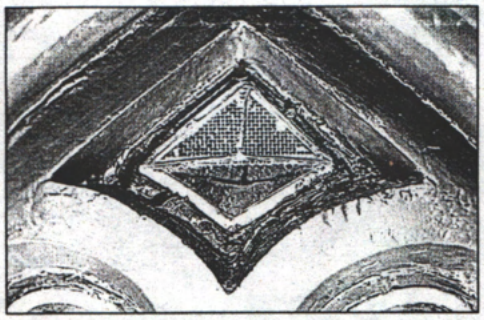
The element in air pollution thought to be dangerous to stained glass windows is sulfur dioxide, which dissolves in water or water vapor to become sulfuric acid.

Most of the glass used in stained glass windows found in American architecture dates from no earlier than the mid-nineteenth century. Unlike the softer medieval glass, *most types of nineteenth and twentieth century stained glass are virtually impervious to most forms of atmospheric deterioration*, including attack by sulfur dioxide in air pollution.

Lead, the most commonly used metal for came in stained glass windows, usually forms a dull grey protective layer of corrosion on exposure to the atmosphere. This dark layer of corrosion is lead sulfate. It is formed when the lead combines with the sulfur dioxide in the air. *This layer of corrosion on the lead came actually becomes more protective in polluted environments.*



An example of vents in the top of a diamond-glazed protective window. These are lead hoods over open diamonds, which have been glazed with screening to keep out insects.



An example of a vent in the top of tracery. The diamond is glazed in the lower half th glass and in the upper half with screen. hood of glass projects out to keep water out of the opening. The rest of the frame is connected to this vent by an internal tubing system.

on the condition of the windows, preferably from someone who has nothing to gain from the installation of protective glazing. This should be done *before* contracting with a studio.

It must also be carefully determined from which sort of deterioration the windows are being protected. In areas of high vandalism, this question is easily answered. Any stained glass window should be protected from deliberate damage or theft. If the windows have extensive painting on the exterior or are made with an unusual and particularly fragile glass, it is usually advisable to protect them. Fired vitreous paint is often unstable in many nineteenth and early twentieth century stained glass windows. In an unprotected window, this condition may be exacerbated both by pollution and humidity.

However, if the windows are unpainted, protective glazing will not protect anything except the came, which, as was already pointed out, actually *benefits* from exposure to air pollution.

HOW PROTECTIVE GLAZING CAN BE DAMAGING TO YOUR STAINED GLASS, AS WELL AS TO YOUR BUILDING

Might the protective glazing actually hurt the windows instead of protecting them? *Yes.* This is always a possibility and is the main reason why the windows and their settings should be carefully inspected before designing a system. No system should be accepted straight off the shelf, so to speak. Any protective glazing, however, *must have adequate ventilation at the top and bottom of each independent panel to allow a full exchange of air several times a day.*

An equally important consideration is the effect a new glazing system will have on the building itself. An old building will have reached an equilibrium of interior humidity and temperature, in which its finishes, furnishings, structural and decorative details co-exist complacently. This may be vital to their well-being, as in the case of pipe-organs in churches, whose tuning is affected by changes in humidity and temperature. At the same time, it is important to consider the comfort of the people who occupy the building. A protective glazing system will tighten the envelope of the building itself, allowing less fluctuation of interior temperature and humidity. This may be good for the building, but it could also drastically alter conditions and create more problems than it solves. Wood, wallpapers, and fabrics may show signs of being affected by changes in trapped humidity more quickly than other materials.

DESIGN

If it is decided that protective glazing is necessary, its design and installation must be carefully considered and executed. The system must:

1. serve its function of protection without causing harm to the stained glass.
2. be able to be easily removed for future cleaning or restoration of the stained glass or frames.
3. be aesthetically sensitive to the building.
4. be installed with proper ventilation.
5. meet all pertinent codes and other regulations, including historic structure standards.

Protective plastic sheet glazing. Note how highly reflective this material is. The stained glass behind it is invisible.

6. be relatively maintenance-free.

These requirements hinge on each other and contribute equally to the choice of materials and design. Those choices are dependent partially upon the reasons for the need for protective glazing and partially on the desired appearance. The decisions (discussed in detail below) which must be made are:

a. glazing material: glass or plastic ?

b. patterning of glazing material: full sheet, geometric patterns, fully patterned leaded glazing, or spot glazing?

c. type of framing: what exists for the stained glass, and what will be created for the protective glazing?

d. venting to interior or exterior: isothermal glazing vs. other types

a) Glazing Material:

1. Glass:

Generally speaking, glass looks better than plastic. It does not scratch or yellow and will not affect the color or amount of light that enters through the stained glass

(unless, of course, the protective glazing is tinted). Glass is fragile, however, and will provide little protection against vandalism, unless unbreakable glass is used (i.e., tempered or safety glass). Protective glazing made of glass is subject to the same accidental breakages as stained glass, but it may be considered sacrificial: it will take the impact and break instead of the stained glass. Any glass protection system will increase the stress placed on the window frame, which must be strong and sound enough to support it.

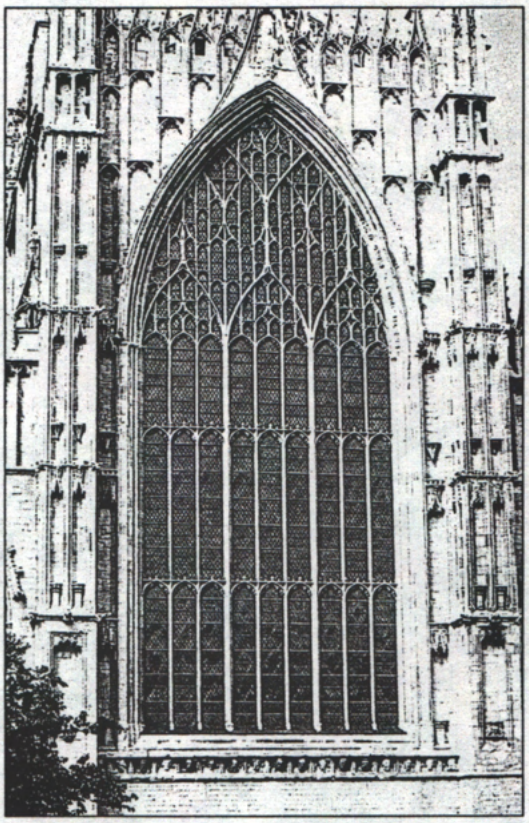
2. Plastic

There are two basic types of rigid plastic material used for protective glazing: acrylic and polycarbonate. Acrylics, which are best known by the trade names Plexiglas®, Lucite®, and Perspex®, are initially less resistant to breakage, yellowing, and scratching than are polycarbonates. For the first several years of its life, polycarbonate sheet, best known by the trade name of Lexan®, is stronger than acrylic. However, this initial high impact strength declines rapidly on exposure to the weather; after about five years acrylic and polycarbonate have similar impact strength. Both materials are available with an ultraviolet filter to decrease yellowing, but they still tend to scratch and become opaque. In point of fact, neither material has an expected life span in excess of twenty years. In most installations, both materials age quite poorly, exhibiting yellowing or obscuring by scratches due to wind abrasion. An additional disadvantage is their high rate of expansion, which leads to bowing if the frames have not been designed to accommodate this expansion. The principle shortcoming of the plastics is their appearance, since they can only be installed in large sheets (see photo, top of page 3).

b) Patterning of Glazing Material:

1. Full sheet:

Glass or plastic can be installed in full sheets. All plastics and any kind of plate glass (including tempered and safety) are installed this way. This type of installation is usually faster and less costly than a leaded pattern. However, the major drawback is the appearance. Reflective materials negate the appearance of the stained glass window.



A window protected with diamond glazing. This is the Great East Window of York Minster, which is the size of a tennis court. Its diamond glazing, installed within the last twenty years, protects a 15th century window. This installation is constantly monitored for condensation and heat build-up.

2 and 3. Patterned Panels:

If the decision has been made to use glass, the owner then has the option to choose a leaded pattern instead of a full sheet (unless tempered or safety glass is required).

A leaded protective panel may be more desirable than full sheet in buildings where the exterior appearance is of primary importance, for instance, in a landmark structure. There are two basic approaches to leaded designs for protective glazing: geometric quarries, or fully patterned.

2. Geometric quarried glazing:

A protective glazing panel may be assembled of regular, repeating geometric shapes, diamonds, rectangles, or other polygons (all are called quarries). These can be made of any type of clear window glass that can be cut and fit into a lead came.

The disadvantages to this type of protective glazing are its expense and the appearance of the shadows of the leads. The advantage is that the appearance of a leaded window is maintained on the exterior.

3. Fully patterned leaded glazing:

The ultimate design for protective glazing is the recreation of the design of the stained glass window in the protective glazing panel. Whether this includes every lead line from the stained glass or only the essential lines of the design, the effect is almost identical to the unprotected window, except that it is made of clear glass. The chief drawback is its high cost. Its major advantage is that the appearance of the particular leaded window is not lost at all.

4. Spot glazing:

In windows where certain pieces need protection but the majority of the window will do well without it, spot glazing may be used. This is very useful on windows that have been restored with epoxy or copper foil or on windows with fragile paint on only the faces of the figures. It does not appreciably add to the weight of the window nor change its appearance.

c) Type of Framing:

The installation of the completed protective panels into frames is as important as the design of the panels. The frames of the existing stained glass must be examined for soundness and their design and structure analyzed to determine if additional frames are needed for the protective glazing.

The protective glazing must be installed at least 1" away from the stained glass, in most cases, and the cavity must be ventilated. These requirements are necessary to insure the circulation and complete exchange of air around the stained glass.

d) Venting:

All other compromises in the design and installation of protective glazing are acceptable if the protective glazing is properly vented. There is always controversy over whether this venting is better done to the exterior or to the interior. As in all aspects of conservation, the answer depends upon the situation.

ENERGY CONSERVATION

One of the more common reasons cited for protective glazing is the need for energy conservation. As the lead and putty of a stained glass window break down, the window becomes drafty. Protective glazing is often installed to correct this problem *instead* of maintaining and repairing the window, reputtying and releading it as needed. Very often in buildings with large interior spaces and many windows, such as churches, protective glazing is installed to lessen the amount of heat cumulatively lost through the drafty windows. Before a building committee considers protective glazing, however, they would be well advised to have an infrared photograph taken of the building, which will locate the locations of greatest heat loss. It may well be that more heat is lost through an uninsulated attic than through the stained glass windows.

PROTECTIVE GLAZING IS NOT RESTORATION

In dealing with stained glass windows, owners must be aware that protective glazing is *not* an alternative to good maintenance and restoration. *It will not correct existing deterioration, nor stop the deterioration process.* It is not a conservation measure when used alone or improperly. Properly installed, it may in some cases lengthen the life of a stained glass window, but not in all. Improperly installed, protective glazing will cause more harm in a shorter period of time than if the window were not protected at all. Responsible stewards of stained glass windows should carefully weigh this decision. **J. L. Sloan**

GLOSSARY OF STAINED GLASS TERMS

ACID ETCHING: use of hydrofluoric acid to dissolve the surface of the glass; this is used often on FLASHED GLASS to remove a layer of color to reveal the base layer of glass.

ANTIQUE GLASS: mouth-blown glass, made by the muff method, in which a tube of glass is blown, then split lengthwise and opened to create a rectangular sheet

ARMATURE: steel or iron framing member within the window opening which supports stained glass panels

BADGER, BADGERING: 1. wide, flat brush made of badger hair, used for blending

MATTE PAINT; also called a blender; 2. the process of blending a MATTE using a badger brush.

BLENDER, BLENDING: see BADGER.

BULL'S EYE: the raised center portion of a glass CROWN, from which the PONTIL was detached

CAME: extruded, cast, or milled H-profile metal strip, usually made of lead, sometimes of zinc, copper, or brass, used to hold pieces of glass together to make a stained glass window (archaic: CALME, CALM)

CARTOON: full size drawing for a window

CARVING: using SANDBLASTING to create areas of varying depth on plate glass to simulate three-dimensional surfaces

CASEMENT: a window which opens on a vertical pivot at the edge of the SASH.

CATHEDRAL GLASS: machine-rolled clear or colored glass

CEMENT: liquid waterproofing compound

CHANNEL: U-profile metal strip made of lead, zinc, copper, or brass, usually used to frame PLATES or autonomous PANELS

COLD PAINT: any unfired paint used to decorate stained glass

CONFETTI GLASS: glass in which chips of glass of other colors are incorporated

COPPER FOIL: thin, narrow strip of copper, usually with adhesive backing, used to join pieces of glass

CORE: see HEART

CROWN GLASS: hand-blown glass made by blowing a globe which is opened at the base and spun, forming a circular sheet of glass with a bull's eye at the center

DOUBLE-HUNG: windows whose SASH slide vertically in their FRAMES

DRAPERY GLASS: OPALESCENT glass which is manipulated during its manufacture to form folds similar in appearance to cloth

DUTCHMAN: see MENDING LEAD.

ENAMEL: opaque, colored FIRED glass paint, made essentially of powdered colored glass

ETCHING: decoration on glass, made by 1. SANDBLASTING, or with 2. ACID.

FAVRILE GLASS: trademark of the Tiffany Studios: glass is highly iridized, designed for use predominantly in glass objects and vessels; term is used erroneously to describe iridized glass in stained glass windows

FILLET: narrow border(s)

FIRE, FIRING: process of placing newly painted glass in a kiln to heat it to a temperature at which the glass paint melts and fuses to the surface of the glass

FLANGE: 1. in a CAME, the parallel legs of the H; 2. see MENDING LEAD

FLASH(ED) GLASS: colored ANTIQUE GLASS in which a pale-colored or clear base layer is coated during blowing with a thin layer of darker color

FRAME: supporting elements for PANELS or SASH which encompass a window opening

GLASS: a mixture of silica (sand), ash, soda, lime, and colorants, which are melted, then cooled into a non-crystalline, inorganic super-cooled liquid

GLASS PAINT: see COLD PAINT, ENAMEL, GRISAILLE, SILVER STAIN, VITREOUS PAINT: any of a variety of materials used to decorate glass; it does not impart color to the body of the glass

GLAZE, GLAZING: 1. process of installing glass or windows; 2. process of assembling leaded glass panels; 3. windows

GLAZIER: 1. one who assembles leaded glass panels or windows; 2. one who installs glass into FRAMES or SASH

GRISAILLE: from French, grey. 1. black, brown, grey, or other dark-colored VITREOUS PAINT, used to decorate glass; 2. windows of clear glass decorated primarily with this paint, using little or no colored glass

GROZE, GROZING: process of modifying shapes of glass pieces by chipping away the edges using either grozing pliers, grozers, the notched side of a glass cutter, or, archaically, a notched iron rod

HEART: center of came: the bar of the H profile

JEWEL: cast or chipped faceted glass pieces

LANCET: narrow vertical divisions of a window having a pointed Gothic arch at the top, used singly or in multiples to form a larger Gothic window

LEAD: soft, malleable metal used in came

LEAD LINE: 1. in window design, line which indicates placement of came; 2. pattern of caming in a window

LEADING-UP: process of GLAZING, or assembly of leaded glass panel

LIGHT: glass-filled openings between MULLIONS of a window

LIGHT LEAKS: gaps between glass and lead, or panel and frame, through which daylight can be seen

LUNETTE: semi-circular window

MATTE PAINT, MATTING: 1. washes of GLASS PAINT, usually GRISAILLE, usually applied to the interior surface of the glass; used for shading; 2. process of applying washes of GLASS PAINT

MENDING LEAD (also DUTCHMAN, FLANGE, STRAP LEAD): full came or flange of came (separated from the heart of the came) inserted between broken pieces or applied to the surface of the broken piece of glass

MULLION: FRAME members, usually vertical, dividing frame into LIGHTS

OCULUS: circular window, not divided by spokes or radii

OPALESCENT GLASS: milky, opaque glass, often of more than one color, developed in late 19th century America and popularized by Louis Comfort Tiffany

PANEL: unit of leaded glass

PATINA: 1. surface film produced by chemical action of air pollutants, dirt, and water on glass over the course of time; 2. chemical applied to glass, came, or copper foil to induce the appearance of aging

PLATE, PLATING: layered piece(s) of glass

PONTIL (or PUNTY): iron rod to which blown globe of hot glass is attached to spin a CROWN

PUTTY: thick waterproofing or setting compound

QUARRY: regular geometric shapes of glass, used in a repeating design

ROSE WINDOW (also WHEEL WINDOW): circular window divided by radial mullions, usually in a floral or wheel pattern

ROUNDEL (or RONDEL): round clear panel, composed of a single piece of glass, sometimes with borders, painted with a complete scene, usually in GRISAILLE and SILVER STAIN

SADDLE BARS: round or flat iron or steel support bars which are set into the SASH or FRAME, crossing the window opening, usually on the inside of the stained glass panel, to which the stained glass is fixed with TIE WIRES, to prevent bowing and sagging

SANDBLASTING: process in which sand under very high pressure is directed at glass covered by a STENCIL: those areas not covered by the stencil are etched or frosted

SASH: the operable or removable part of a window

SEEDS: small bubbles in ANTIQUE GLASS

SILVER STAIN: a type of GLASS PAINT composed of silver nitrate or silver chloride, applied to the exterior surface of glass; when fired, it stains the glass a yellow to golden-orange color

SOLDER: mixture of lead and tin, melted with a soldering iron to join the ends of came or the seams of copper foil

SPRING LINE: the point in an arch at which the arch begins

STAINED GLASS: 1. leaded glass PANELS; 2. painted glass, or painted glass PANELS; 3. glass colored during its manufacture

STENCILING: creation of repeated designs by painting or etching using a cut-out pattern

STIPPLING: type of MATTE in which the tips of a BADGER are repeatedly touched to wet paint

STOPGAP: repair using materials foreign to the window, such as glass from another source, wood, lead, tar, etc.

STRAP LEAD: see MENDING LEAD.

SUPPORT BARS: see SADDLE BARS, T-BARS

T-BARS: iron, steel, or aluminum support bars having a T-profile, set into the FRAME and upon which the PANELS are set

TIE WIRES: copper wires or lead strips soldered to the stained glass PANELS to be wrapped around saddle bars and twisted closed

TRACE, TRACE LINE: dark, opaque paint line, usually applied to the interior surface, used to delineate details

TRACERY: ornamental framework at the top of a window opening, usually in the Gothic style

VITREOUS PAINT: paint composed of ground glass and metallic oxide pigments, applied to glass for detailing and enhancement, fired in a kiln to melt and fuse with the surface of the glass

ZINC: stiff, brittle metal used for CAME; not as common as lead came

Author

Julie L. Sloan is president of McKernan Satterlee Associates, Inc., a firm that specializes in the conservation of stained glass, consulting with the owners of stained glass in museums, churches, and public buildings to see that the glass gets the very best of care. The firm acts as knowledgeable liaison between the owner and the contractor to be sure work proposed by the contractor is both necessary and correctly done. Ms. Sloan is also an adjunct professor in stained glass conservation at Columbia University.

Clients currently include churches throughout the country, museums in New York and other major cities, several state capitols, and numerous projects in the private sector, including universities, hotels and private residences.

On-site inspection, photography, full reports, condition studies, and supervision are available, as is telephone consultation.

Ms. Sloan can be contacted at McKernan Satterlee Associates, Inc., Tonetta Lake Road, Brewster, New York 10509. (914) 278-2187.

QUESTIONS? COMMENTS?
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VIEW FROM 17th ST
1890

Seventeenth Street


1921

N.E. Cor. Wing

Street

N.W. Admin. Wing

Said to be orig. architect's drawing.
Note ROUND tower shown, SQUARE tower built.

N

ENTRY

St. Michaels & All Saints Episcopal Ch.
1888 Anniston, Al.
photos April '93 Harvie P. James FAIA

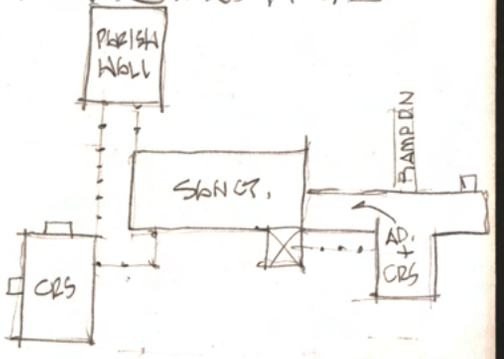


Photo apparently done shortly after completion.
Note sapling trees about 6'-8' h.
Looking S. Note square tower (round in drawing)
Picture was glass-covered, throwing off flash.

N

1888 St. Michael's Anniston

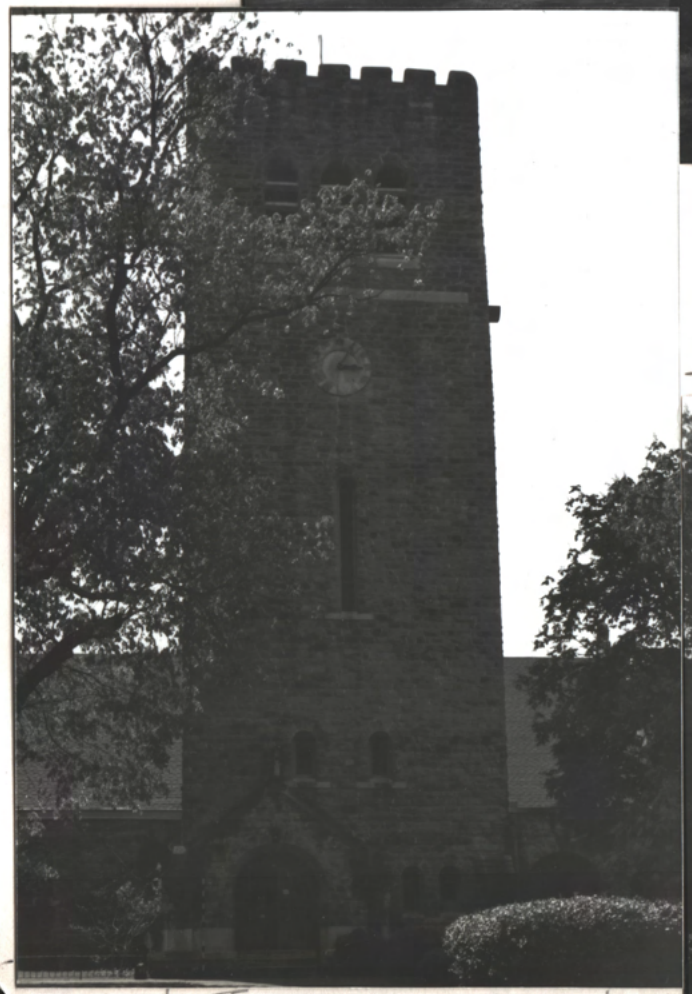
S.E. C.R. Wing

N

Sanct. E W M

CONT'D

MATCH LINE "A"

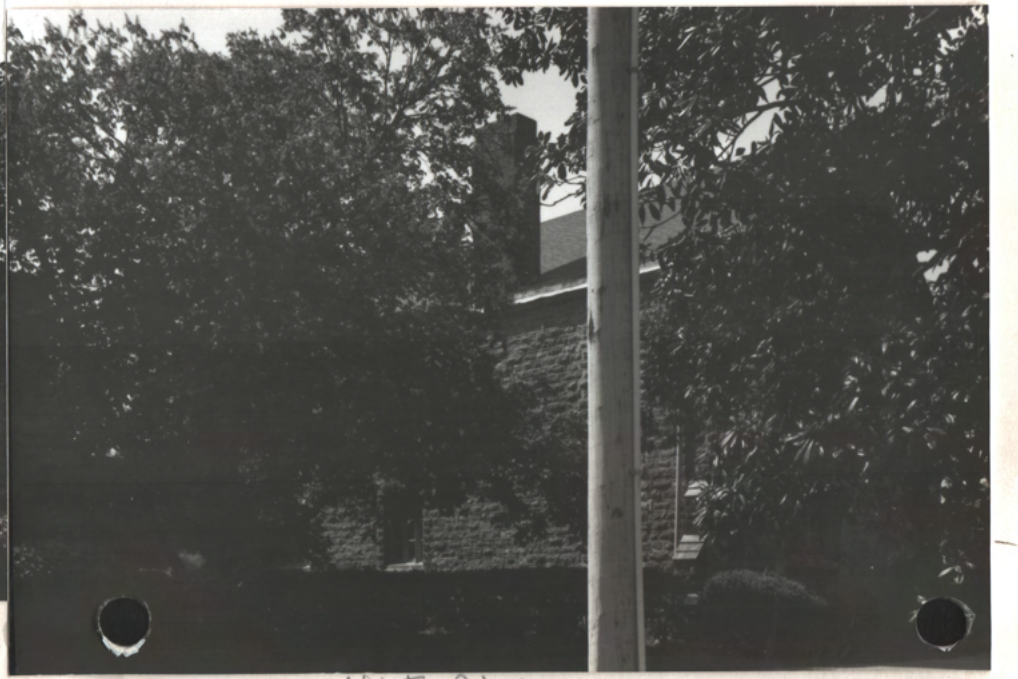


CONT'D

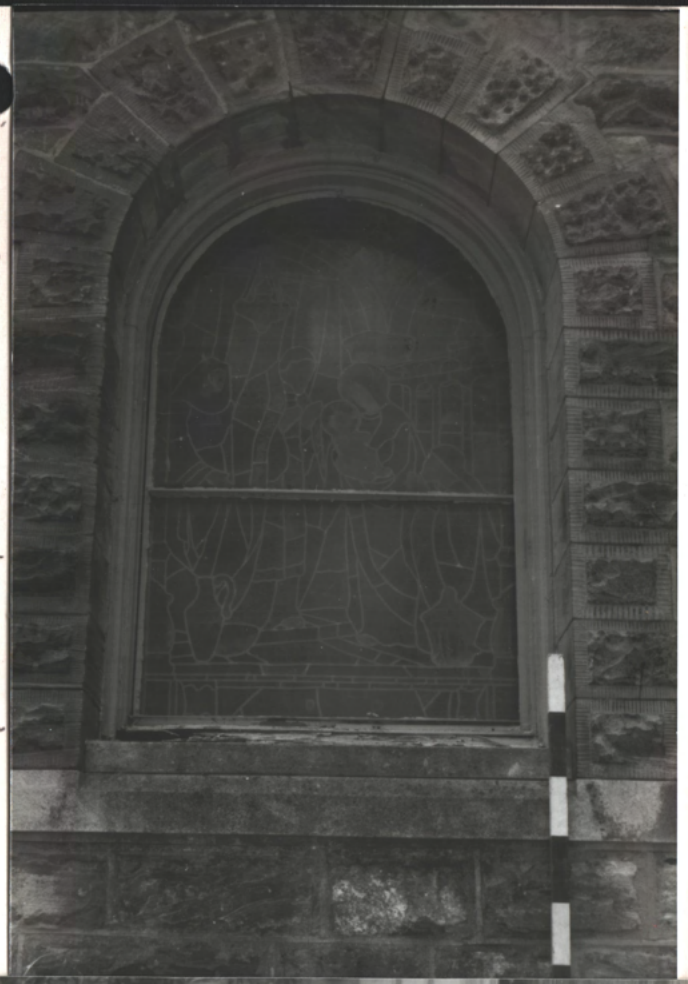
MATCH LINE "A"

Tower (Entry)

N



N.E. Admin. Wing



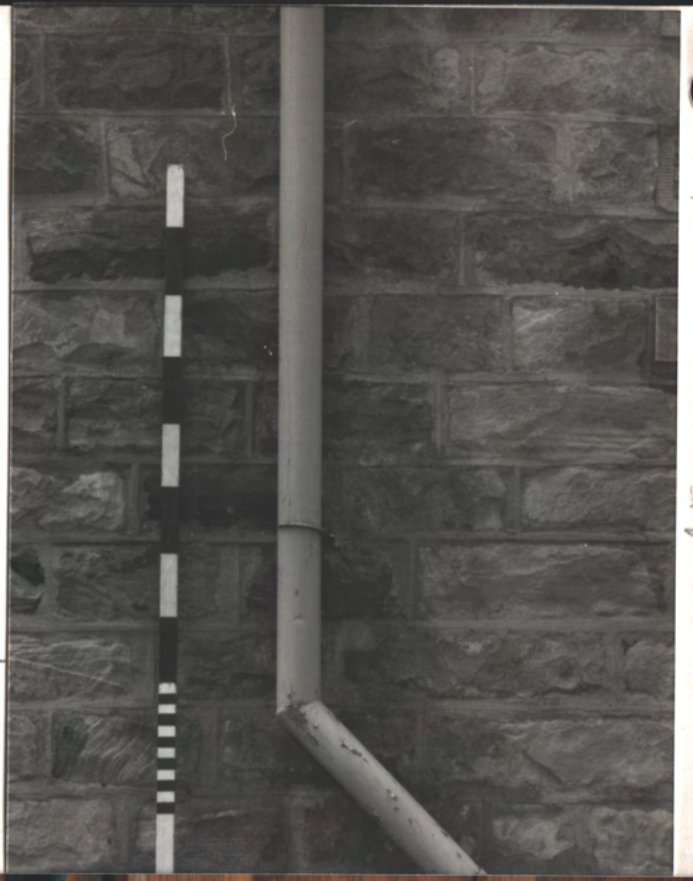
mortar out 1/2 at arch (typical)

N. WINDOW Control

N

Rotted sill

Tower south door. Note bottom stone step completely buried



N

N

Dark streaks on stone show downspouts once stopped-up (typical)

E. WALL, SANCT. Control

E. Tower entry

Vent buried by later fill. Compare w/ archit. drwg. p. 1
N. Central wall
N

Tower S. Door

E. Cent. Wall
Spalled sandstone (common)
sloppy repointing

Pointed SM

N

NOTE
Entire bldg. was repointed in c. 1960 with hard portland cem. (gray).
Orig. mortar was lime, color of sandstone.
Luckily the hard mortar is only about on the surface & rarely deeper than 1/8 - 1/4"

Tower South door. step now buried in later fill

5 of 25

Sparked stone → ← ℄ N.E. Corner ↴ S.E. Ambulatory

℄ Cent. wall — dm spout dumps on Fndn.

↑ plastic drain (soil forms ndam around bldg.)

↑ Tower W. Wall

Loc ?

R.D.S. drops on finds gutters into Crawl Space

Loc. 1

rotted sill (very few apparent)

E Cent. W.M-Sect.

→ N

← drain into underground pipe probably stopped-up by roots & leaves

20/25

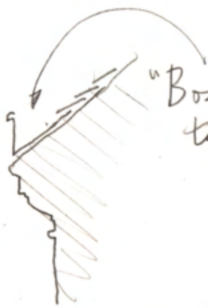
① ↑ Arcade east of tower

AN ↑ Admin. N.E. wing

② ↑

③ ↑

② ↑N

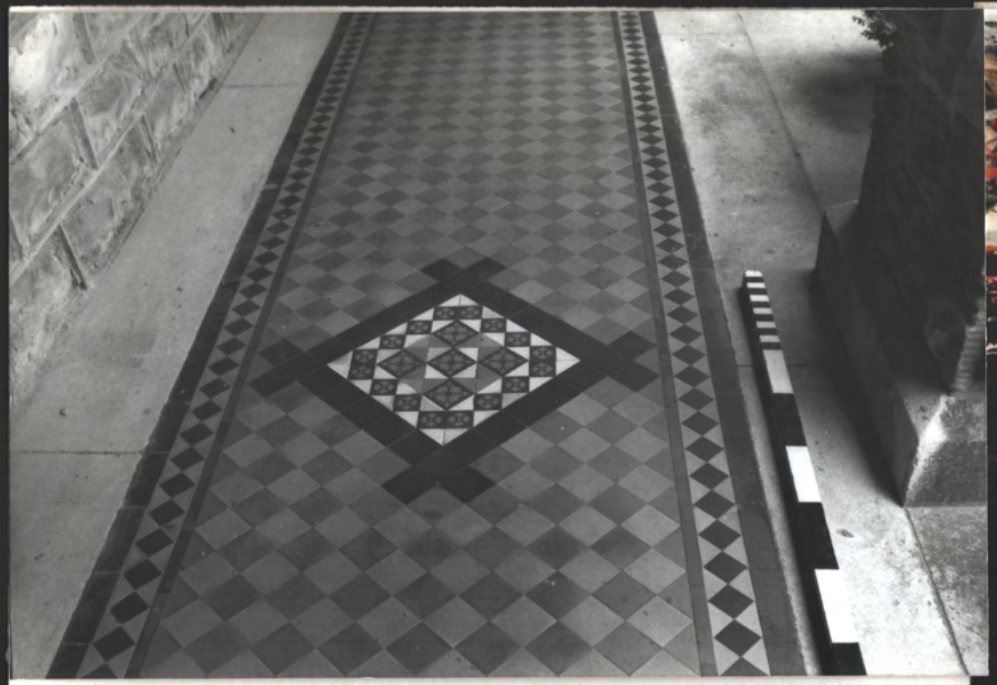


"Boston" gutters typical →

N

Why siding? See p.10 for roof behind. May be due to old leaks

③



Encaustic tiles with yl. at N. E. arcade, by Minton.

→N

† drain spout not joined to C.I. storm drain Loc.?

→N.W. Arcade

→South

N.E. Cell Wing

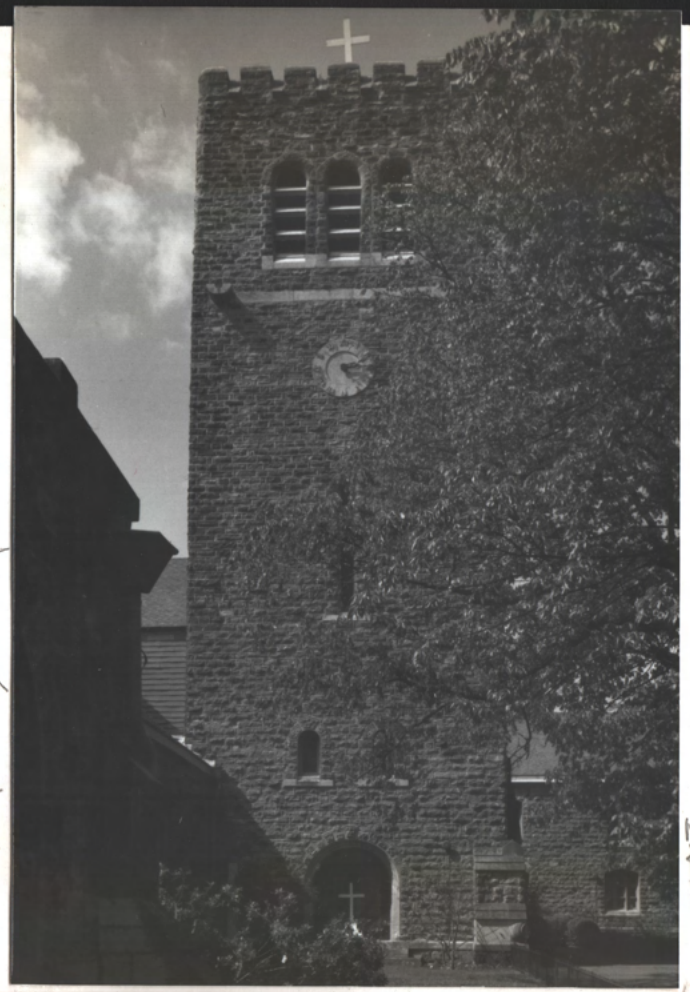
N

8

9 of 25

"Cricket" steel (flatter?) behind tower

Tower S. face



Com. asbestos on "Cricket" steel (see photo above)

N

White streaks are oxidized "sealant" put in cracks years ago

> Hard portland cem. put in ±20 years ago (not good). Gray color.

N Tower south f.c. about 20' up (telephoto)

Tower
N. Fc.

← "Cricket" shed (date?) w/ corr. asbestos tiles on walls

← GAF Timberline asphalt shingles (not flat)

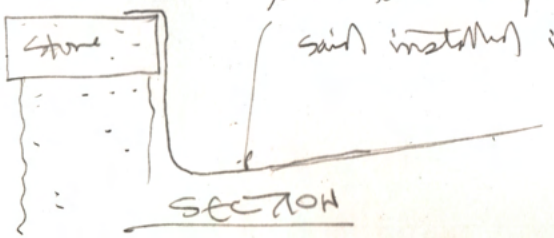
STRUCT. (CANTILEVER) ROOF

Orig. roof = gypsum slate (found pieces in attic)

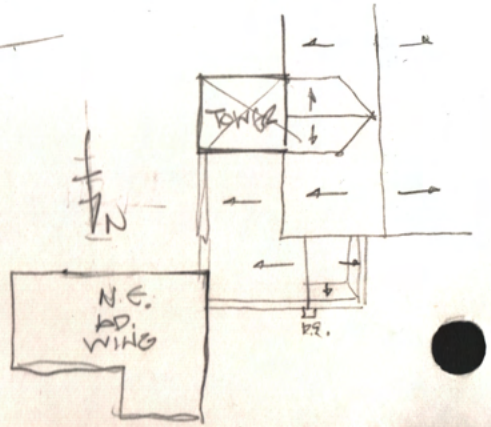
N

N

looks like single-ply roof (type?) said installed in recent years

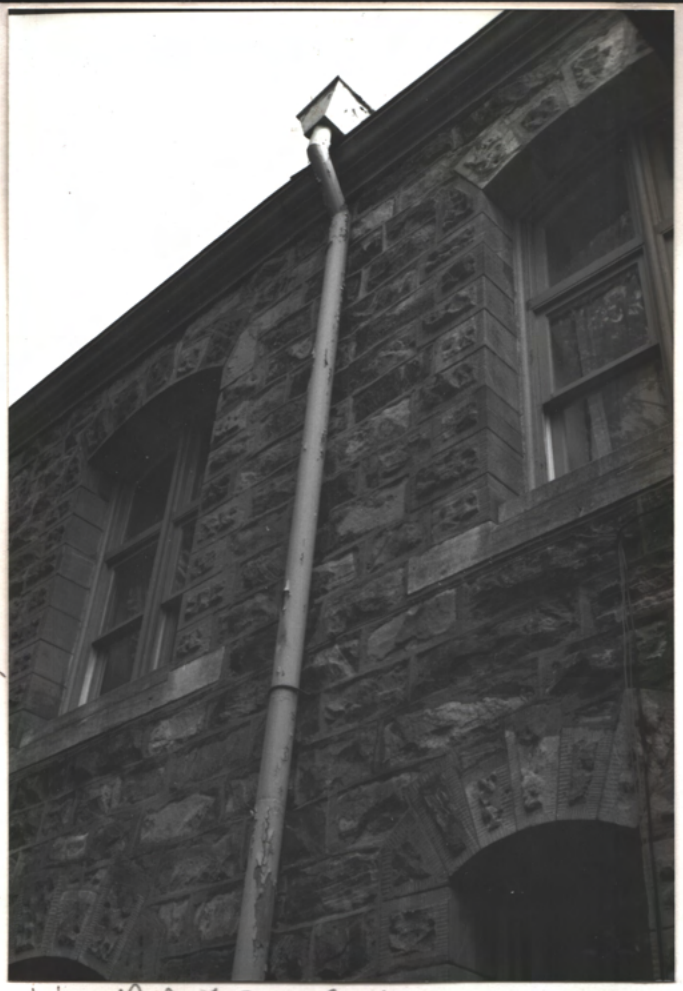


SECTION



"Hump" in roof probably recent, to drain to ...

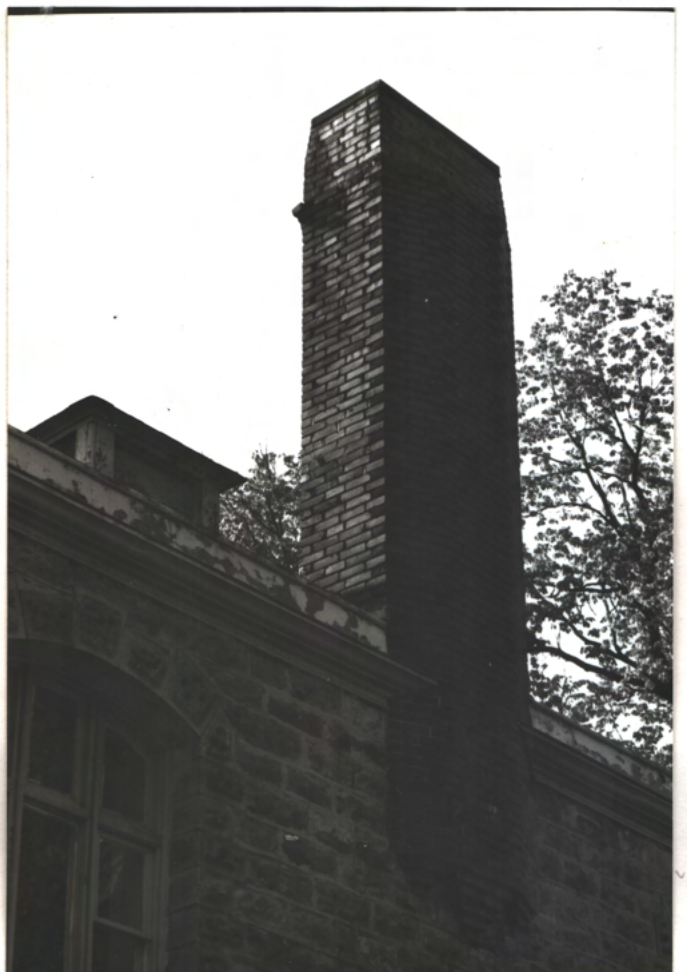
01



W. wall of S.E.-CR wing

peeled paint = galv. not cleaned first, or wrong paint or both (typical)

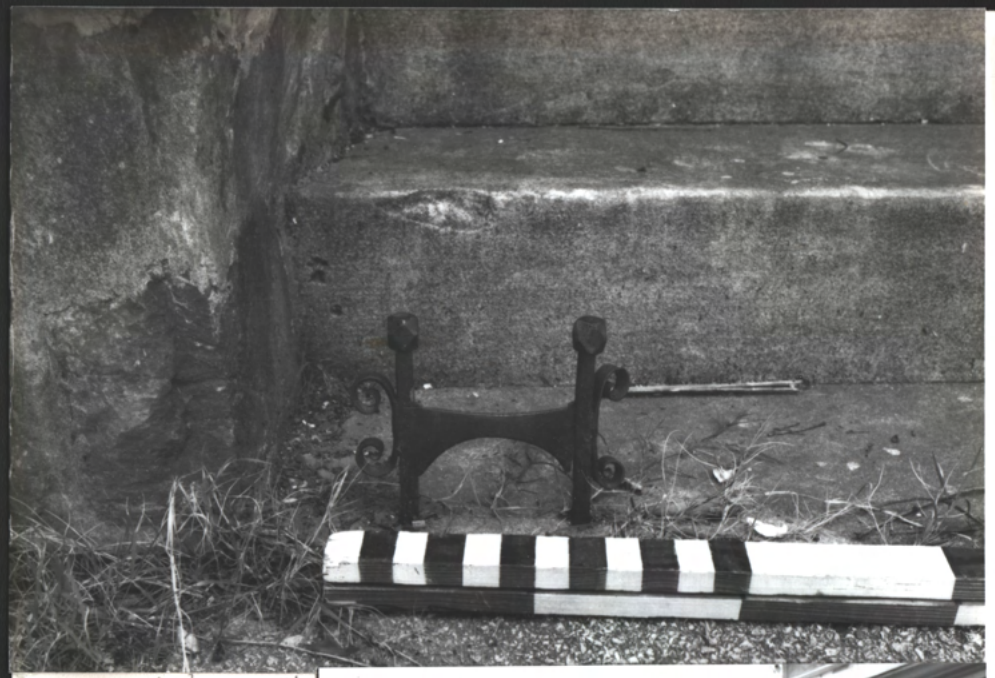
N.E. Corner of S.E.-CR Wing, typical feeder-head + Boston gutter



E. Chim. of S.E.-CR wing, matches arch. drwg

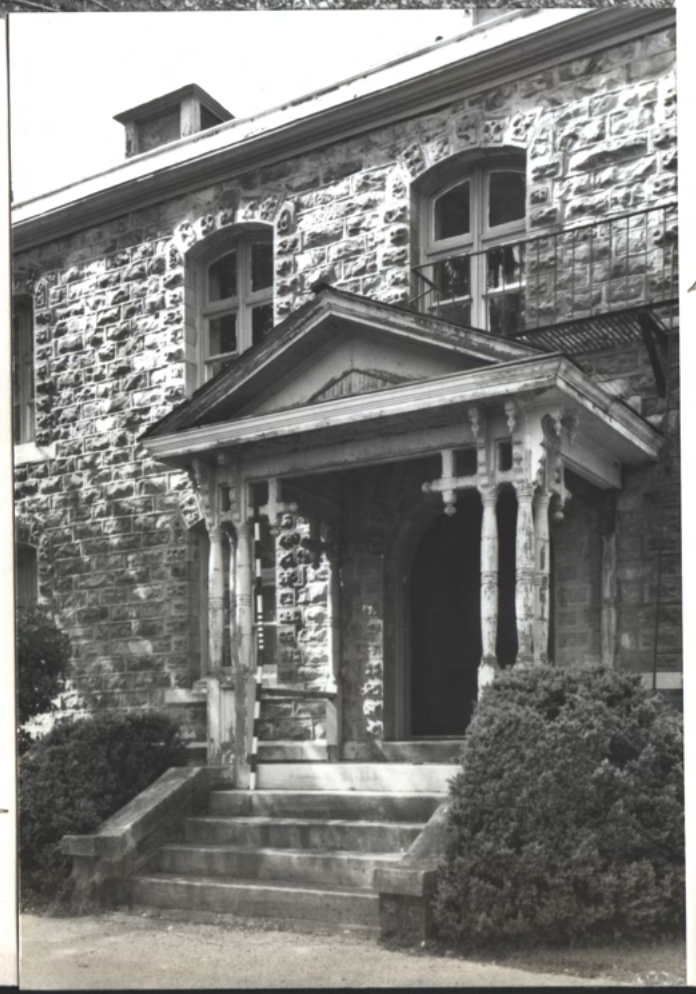
repoint header + cap flashing needed

Chim. north of tower - Top 16" not like arch. drwg



Iron footscraper

South porch at SE-CR wing



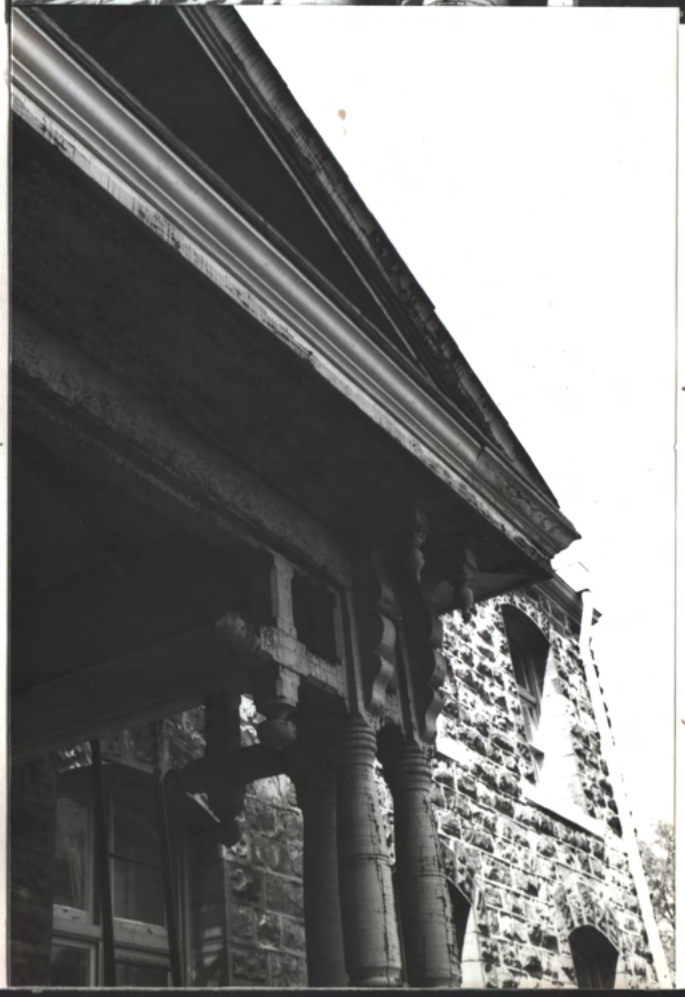
Limestone step

12

Horiz. moulding is modern (WP45)

Later fire escape

N



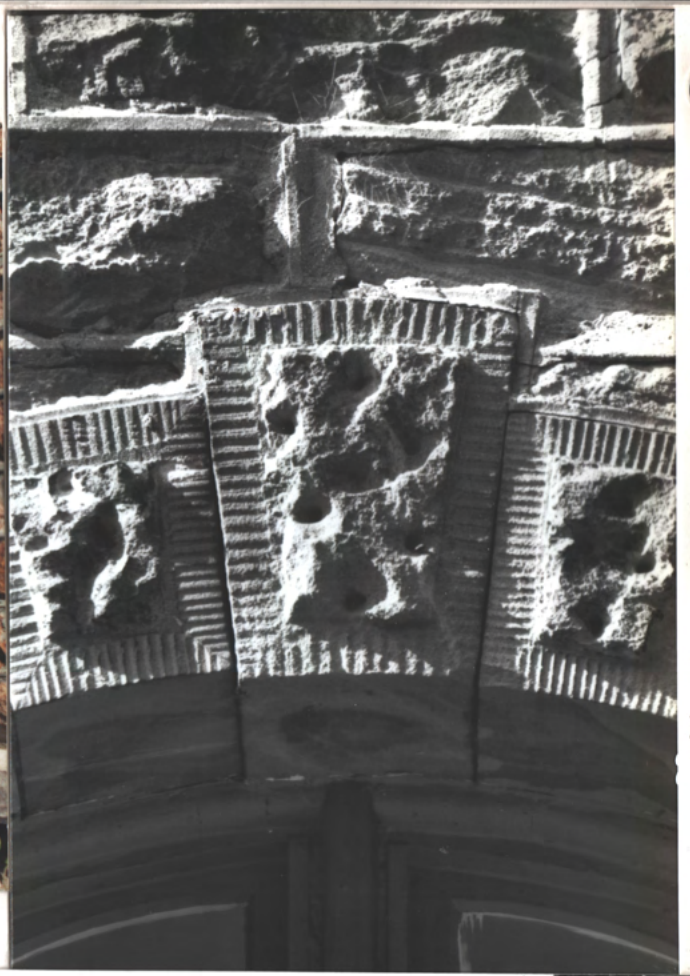
N

Rake-Mould = 1880 (verify exact profile)

Horiz. Mould = modern WP45

13405

E. Porch of N.E. Wing



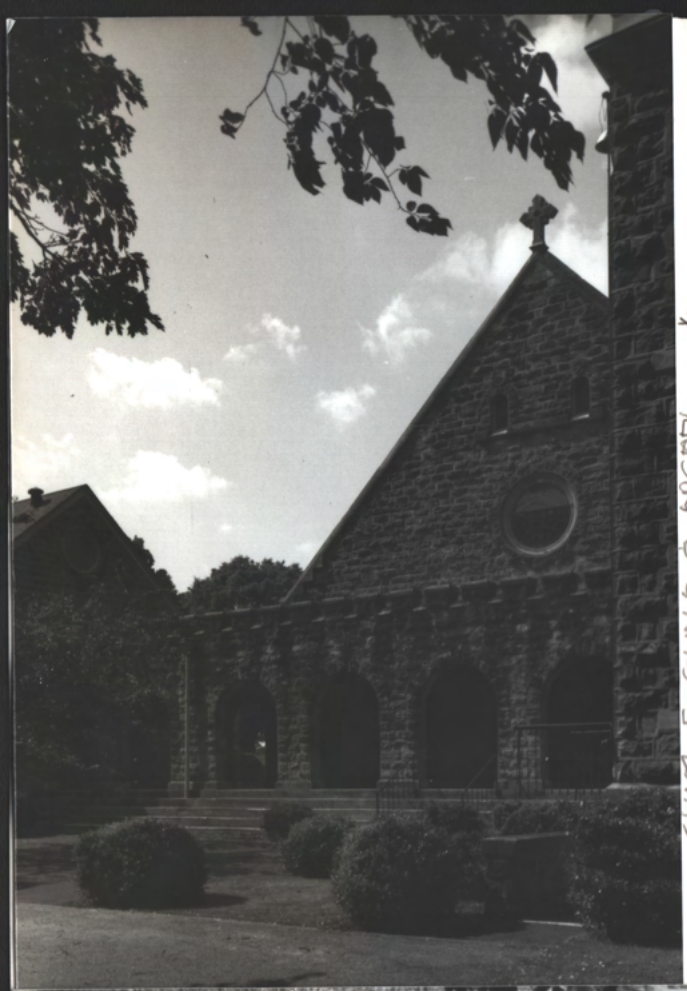
Keystone of S. window of SE-CR wing. Mortar out. Stones slipped down ½" ±. Many thru.

N

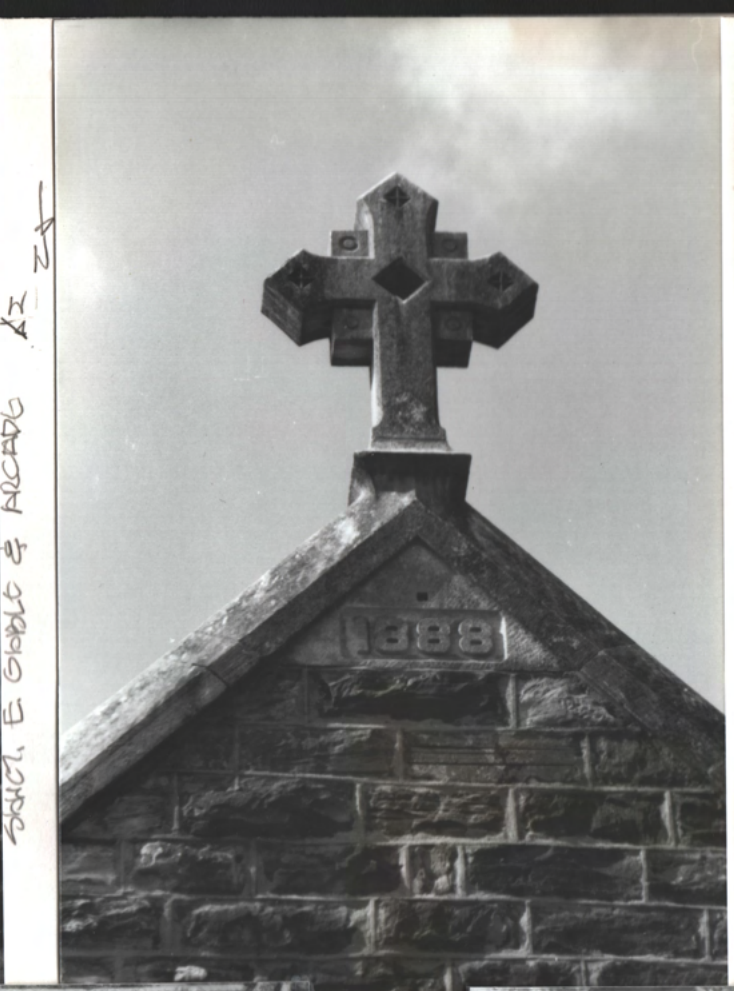
S.E. Corner of N.E. Wing

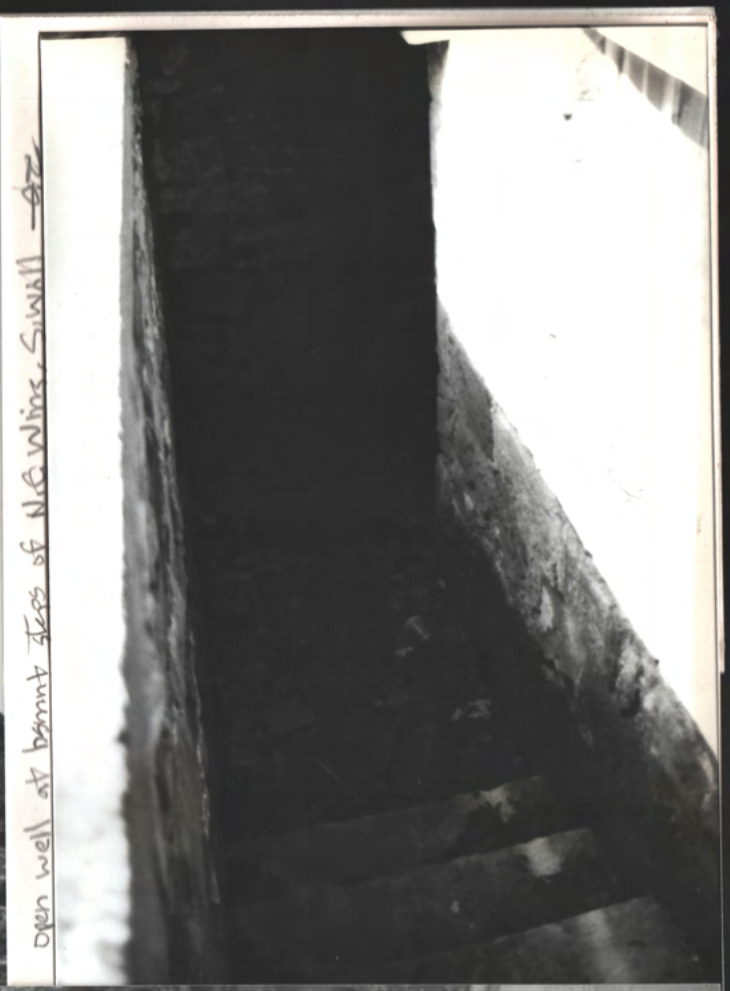
E. Wall of S.E. Wing

N



SOUTH, E GABLE & ARCADE





OPEN WELL AT BASMT STEPS OF N.E. WING. S. WALL

SOUTH, EAST GABLE

OPEN BSMNT DOOR WELL, S. WALL OF WING (LEAKS)

E. STEPS TO ST.

15 of 25

lime-stone caps

Parapet at Smct. south arcade (flat roof behind)

N

Smct. east entry N

W. wall, SE-cr wing

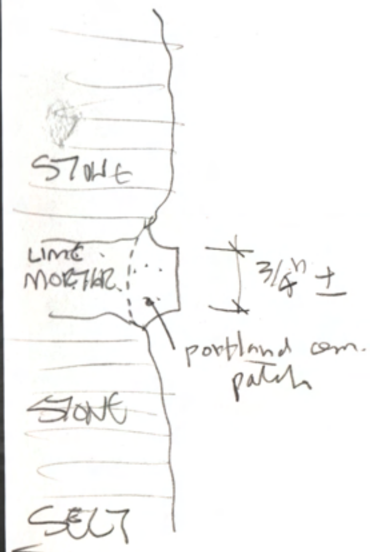
Parish hall N

Smct. S. entry

to parking beyond

Sanct. ¶ Sanct. S. entry W/ Roscamatic cer. tile

¶ rot due to leak in flat roof above



¶ N ¶ Lt. mortar = original lt. buff color lime mortar.

Dark mortar = c. 1960 portland cem.

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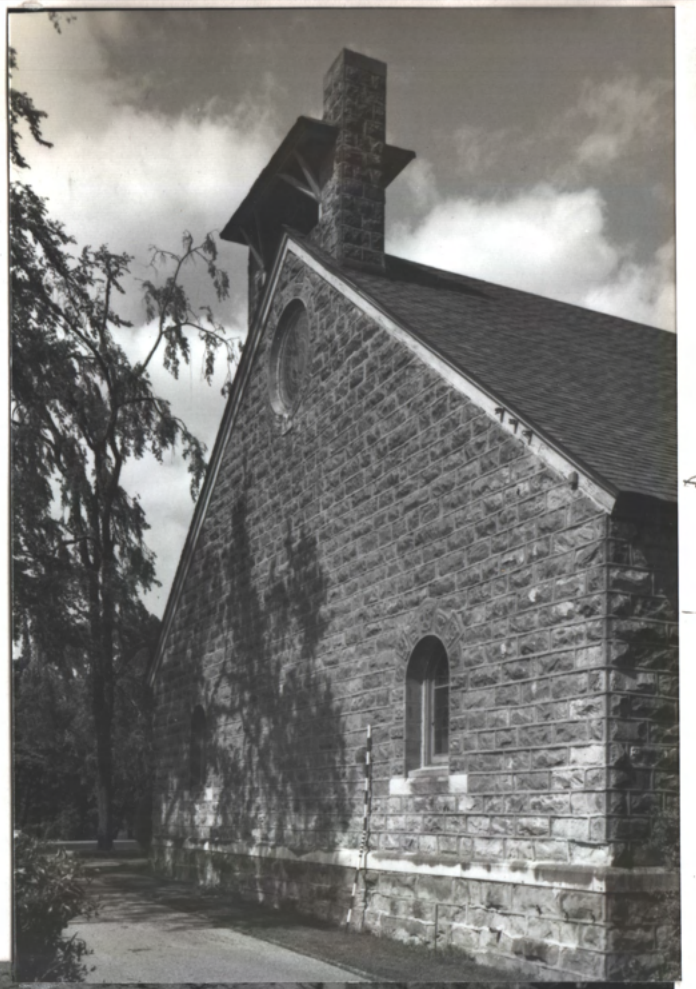


Parish Hall W. Wall

→ old cer. elect. insulators on rake-fascia

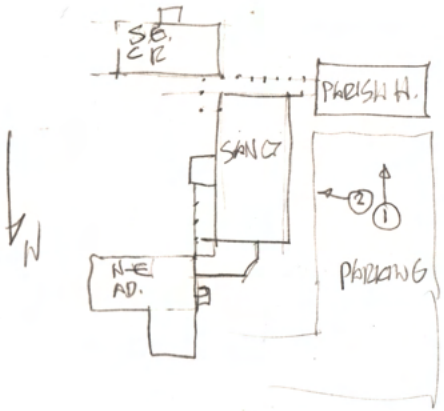
At S.W. Corner: entire face of stone spalled ± 1½" deep

plant growing at top of portland pt.

portland cem. patch

1¾"

N



S. wall.
N.E.
Corner

1

– Parish Hall N. wall

N

2

N. –

S. wall. W. wall

Asphalt parking

18

19 of 25

N

W. Sanct. wall:
bsmnt
scuttle (metal)
±3/4" crack
admits water

N

SANCT.
W. WALL
WINDOW
bsmnt
scuttle

Note
stone
slipped
3/4" ±

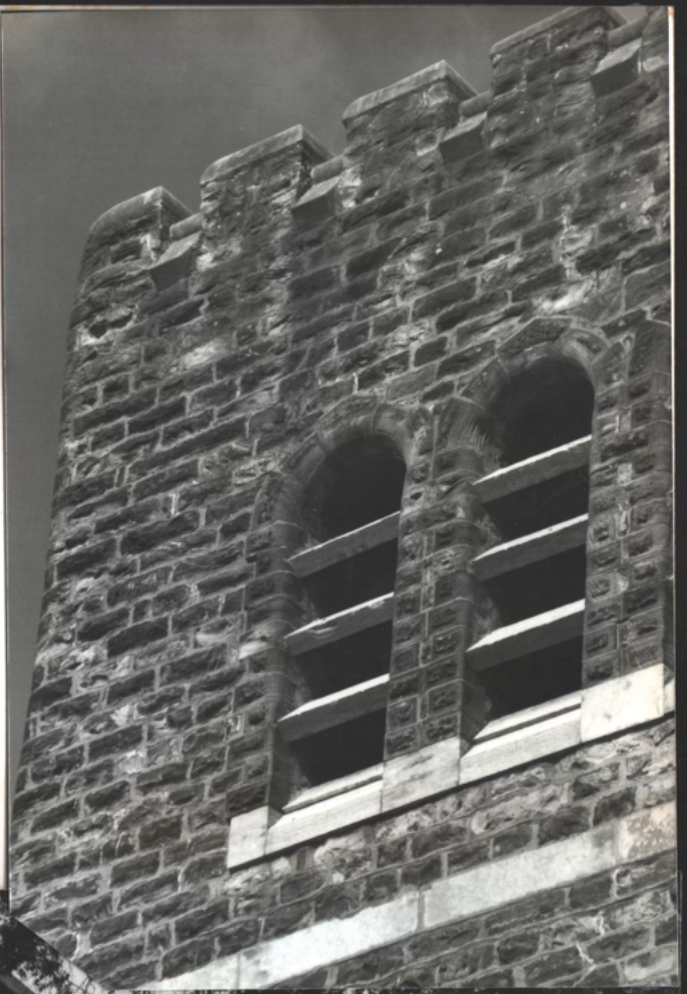
Note
rotted
trim +
patched
jams

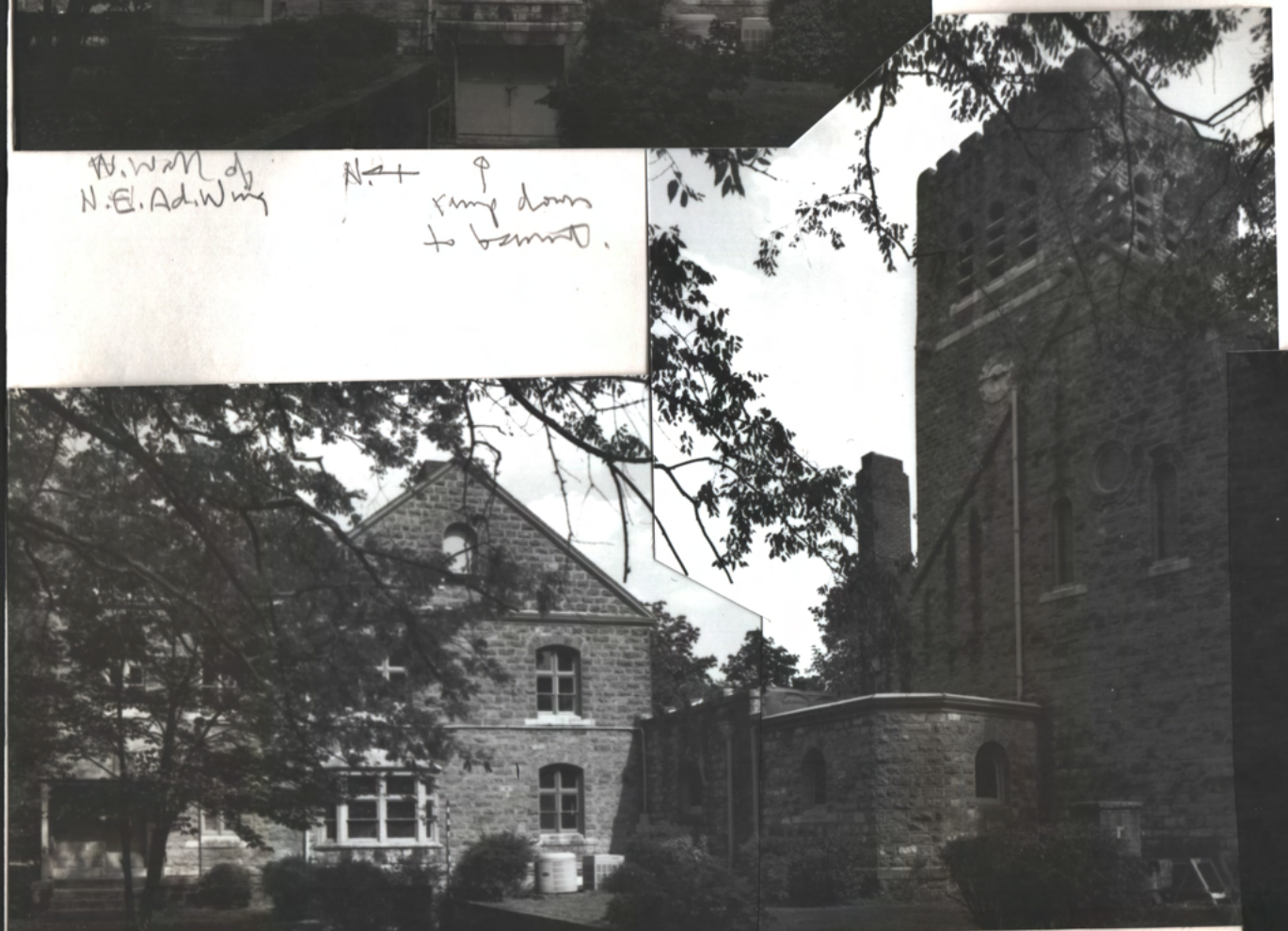
W. wall of N.E. Ad. Wing

N.+

ramp down to basement.

Bell Tower S. Wall (many bells)

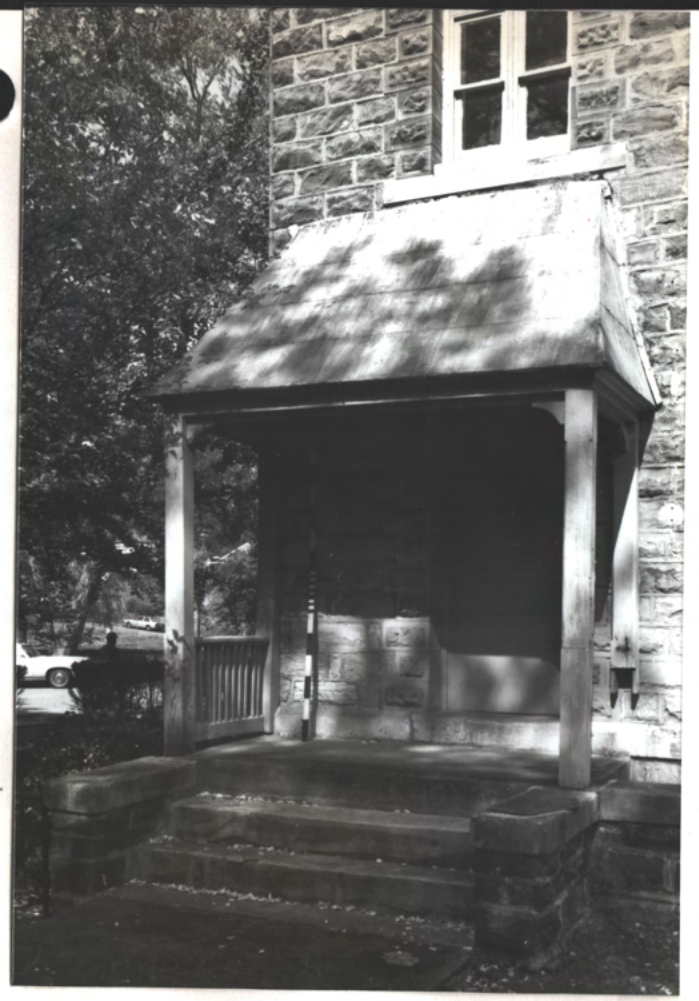




N.+ N.E. AD. WING

SANCT. NORTH END

parish hall



N

N

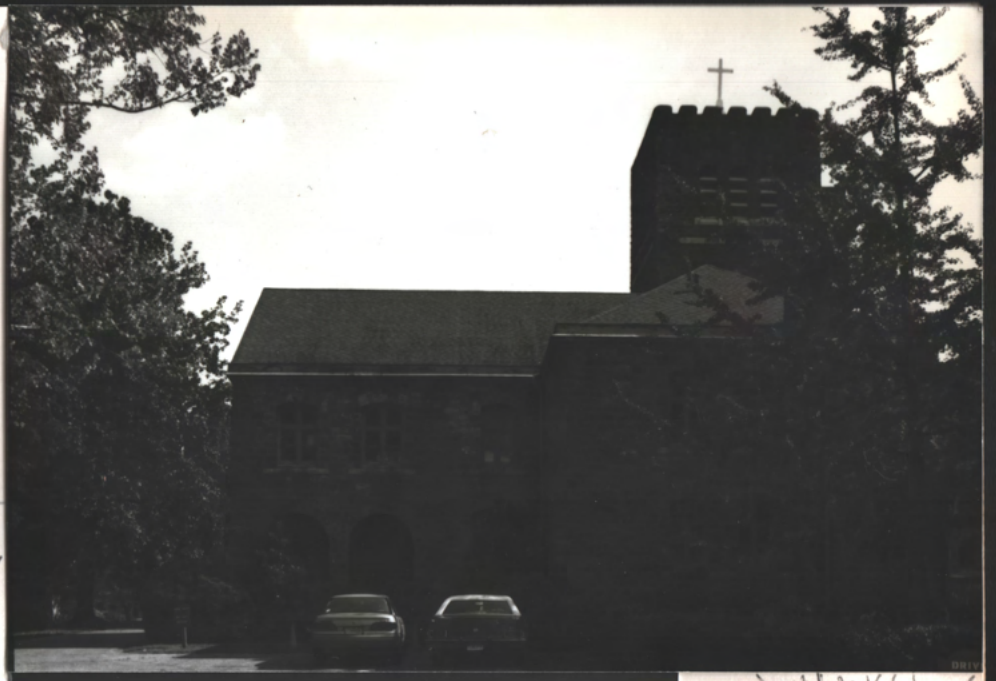
N. & SD. WING., W. WALL & STOOP

Note very grey portland cem. pat in c.1960 = hard & brittle (smooth stone)

N

note outer post patched at bottom 2' ±

(sg. gt. = not good)



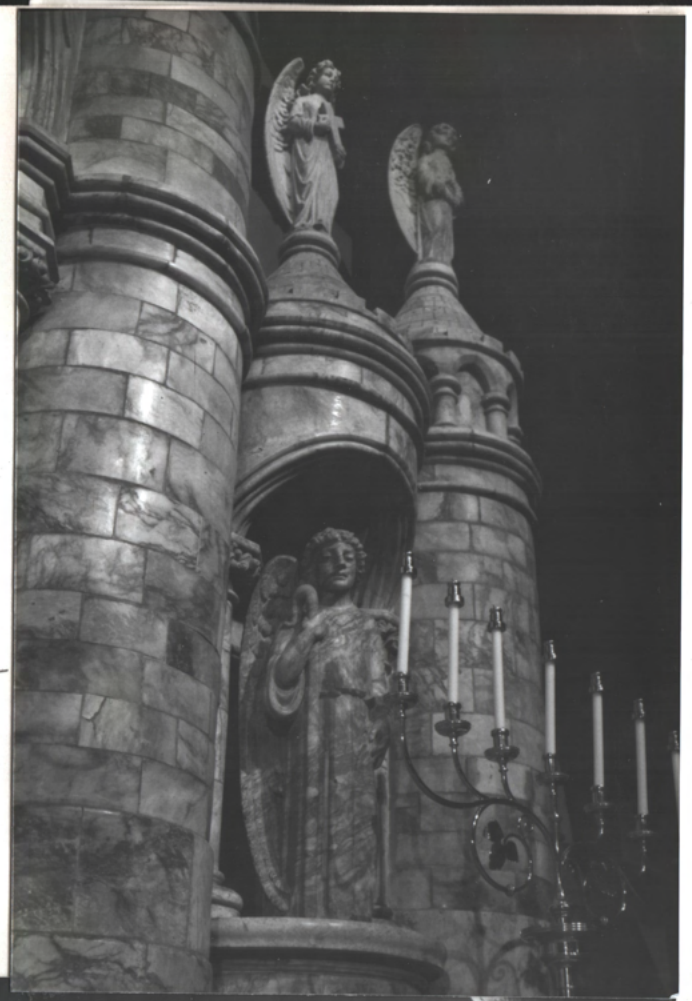
E WALL of
N.E. AD WING

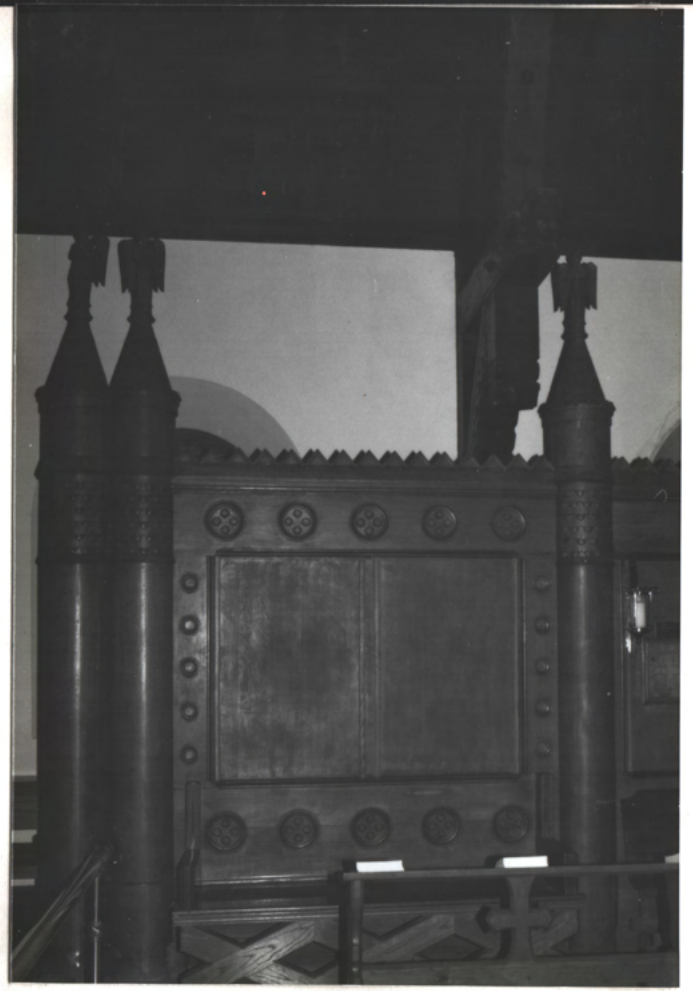
CHANCEL

N. WALL of
N.E. AD.
WING

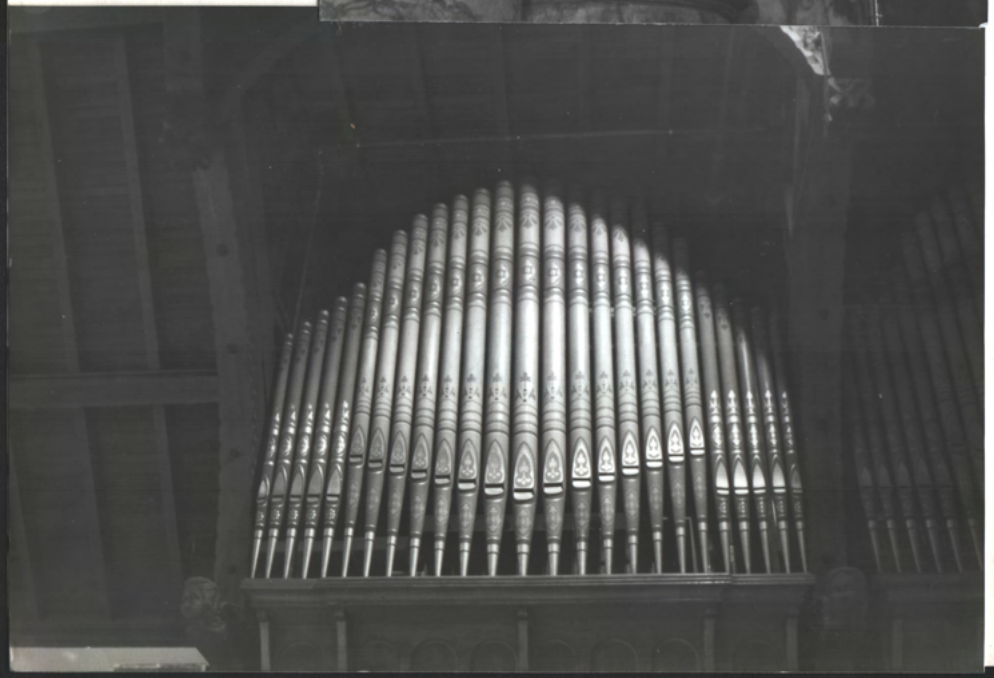
22

123 of 125





N. Side screen at chancel



N. Side of chancel:
Painted organ pipes
(Paint said to be original,
but looks too fresh)

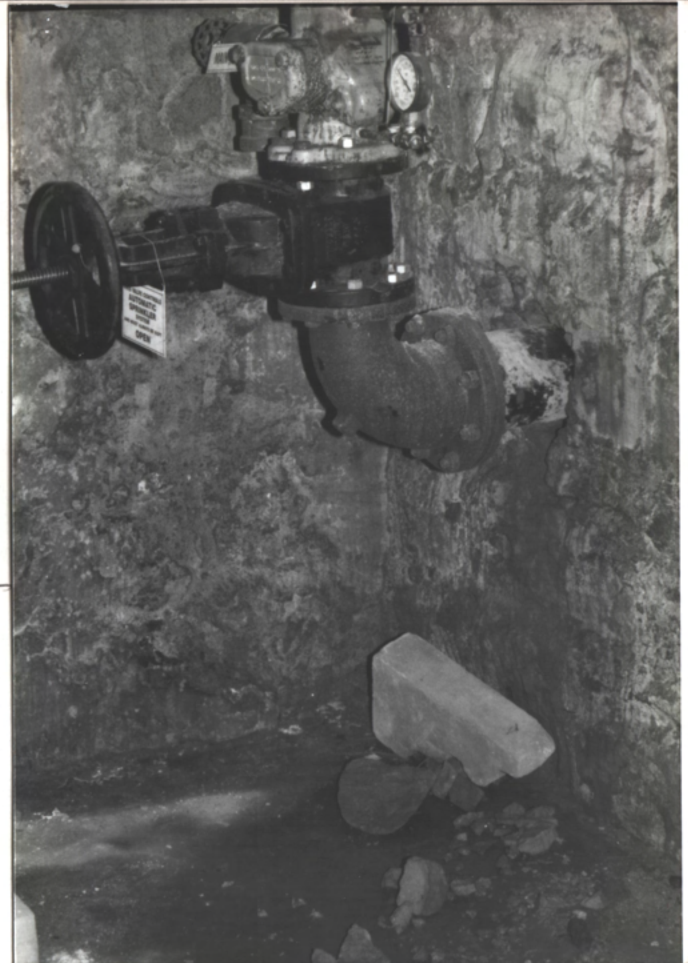
Carved faces in wood brackets

Painted organ pipes, N. side

ST MICHAELS EPIS. ANNISTON

25805

Rotted Sanctuary flr joist ends propped up on conc. blocks (typical)



a copious water leaks in tower E. wall (bsmnt) at recently installed fire-sprinkler water supply

Water evidence in bsmnt flr.

Giant "chair" sign Down town ±40' h. 6th St. S & Noble St. Anniston