



Fig. 1. Trinity Church, Bermuda. View from south east.
(Photo: Barry Magrill)

Barry Magrill

“Development” and Ecclesiology in the Outposts of the British Empire: William Hay’s Gothic Solutions For Church Building in Tropical Climates (1840-1890)

In the mid-nineteenth century, practitioners engaged in reviving Gothic form for church building in remote outposts of the British Empire balanced style with necessity, while striving for correct ecclesiological designs. Necessity, read as purposefulness or “Utility,” was the motive that activated “development” as a structure permeating antiquarianism for a clientele desiring changeability and adaptability. In remote British colonies there was the question of adapting Ecclesiological rules in their application to site specificity, locale, climate, constricted building budgets, materials availability, and the reality of unskilled labour. Meanwhile, Imperialist geo-political and religious power structures defined the appropriateness of Gothic style. Within the confines of the Gothic Revival style, adjustments made to Ecclesiological correctness exemplified the need for colonial practitioners to build Gothic churches in a practicable manner for the colonies. The architect William Hay (1818-1888), born and trained in Scotland, near Edinburgh, was instrumental in bringing to Canada that type of ecclesiology moderated by “Utility.” Arriving in Canada as Clerk-of-Works for George Gilbert Scott, architect of the Anglican Cathedral in St. John’s, Newfoundland, under the patronage of Edward Field, Bishop of the combined diocese of Newfoundland and Bermuda, Hay eventually opened successful practices in Toronto and Halifax before returning to Scotland to supervise the restoration of St. Giles Cathedral, Edinburgh. Hay trained some of the leading architects in Canada; for instance, his practice linked the London office of George Gilbert Scott (later knighted for his service to architecture) with the leading church architect in Toronto, Henry Langley (1836-1906).¹ In Bermuda, meanwhile, Hay’s influence revolved around important commissions that were decidedly designed according to the challenges encountered with the tropical climate.²

As a mid-Victorian-era church builder in the British outpost of Bermuda, Hay contended with problems beyond the proper application of revived Gothic forms. The hurricane of 1880 that

Barry Magrill is a doctoral student at the University of British Columbia, with previous degrees in art history from York University in Toronto. Aside from a specialization in the postcolonial, he studies medieval architectural sculpture.

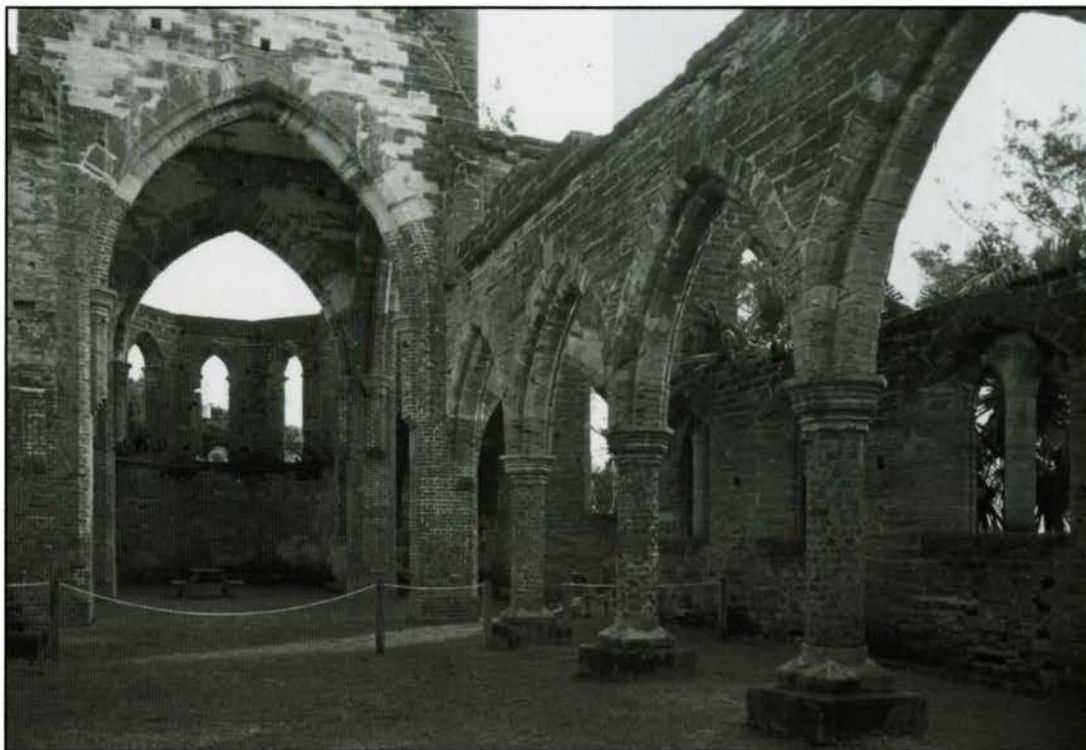


Fig. 2. St. Peter's, "The Unfinished Church", St. George's, Bermuda. Looking toward the east. (Photo: Barry Magrill)

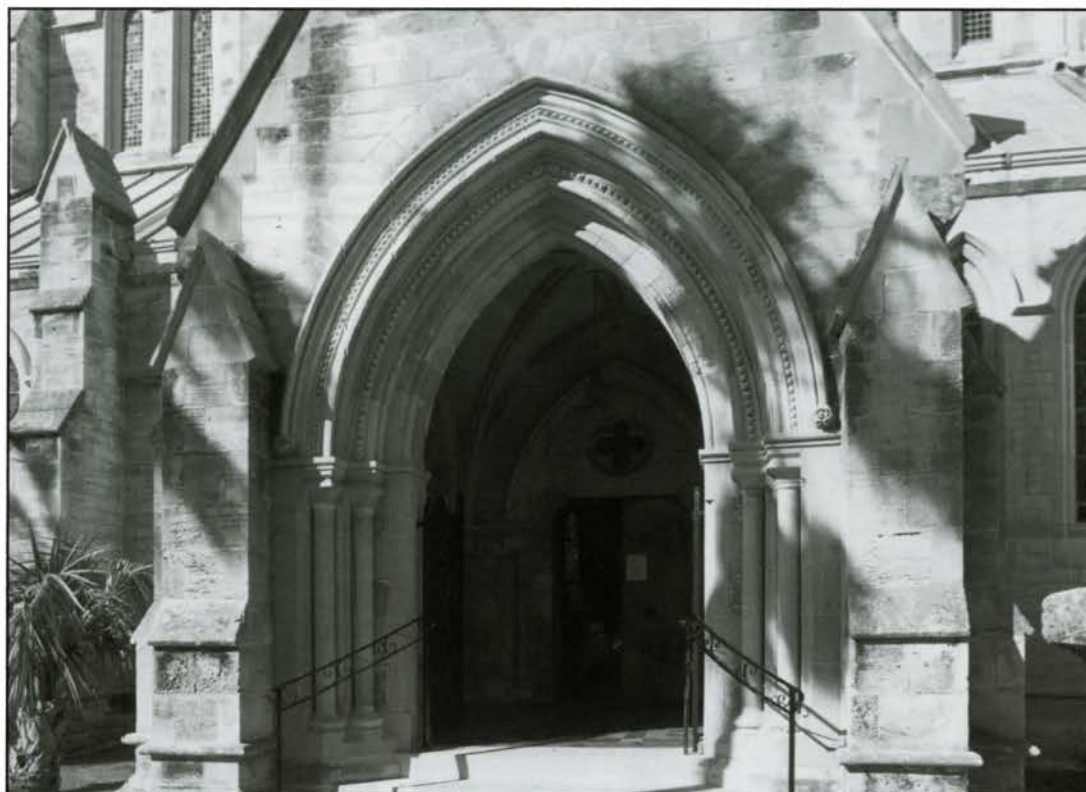
hit this small island vividly demonstrated that climate affected the erection and maintenance of church structures. In the first Church of the Most Holy Trinity, Hamilton, Bermuda, designed by James Cranston (1842-1868) then modified according to ecclesiological principles during completion by architect William Hay, damage to roofing slates revealed construction errors that had allowed sun and heat to turn the wooden roof rafters to charcoal. The error in the roof was due to unskilled, local workers who left no ventilation space between it and the wall. In addition to that problem, local building materials and limited building budgets made it problematical to balance Ecclesiological Gothic with practical building considerations in the tropical colonies. At the fulcrum of that contest in Gothic principles was the notion of "development," a nineteenth-century term describing the adaptation of Gothic's rigid rules in favour of practical building requirements. Hay's solutions to building problems in tropical colonies applied "development" as a practical tool that altered the aesthetic of the Gothic church. This paper examines cost-saving measures, style, and necessity in the manifestation of "development" in William Hay's brand of tropical Gothic.³ The Church of the Most Holy Trinity (1884-1886) (now Cathedral) in the parish of Pembroke in Hamilton, Bermuda (fig. 1), and St. Peter's (the Unfinished Church) in St. George's, also in Bermuda (fig. 2), are examples of William Hay's solutions for tropical climates.

Key to understanding the changes that "development" presented for post-1840s Gothic Revival are the principles dealing with archaeological precedent contemporaneously applied to that style of architecture. The fundamental elements of Gothic design in the first Trinity Church, and its successor designed entirely by Hay, reflect knowledge of the basic archaeological principles revolutionized by the work of one man, Augustus

Welby Northmore Pugin (1812-1852). Pugin advocated the close study of medieval churches, preferably from the Decorated phase of English Gothic, to reflect the superior Christian social values of the Middle Ages. Correct Gothic designs sub-divided building components to reflect liturgical function, had asymmetrical plans, and used construction materi-

als truthfully. In other words, the building components should not be integrated into one "preaching box" with tacked on Gothic details akin to James Gibbs' St. Martin-in-the-Fields, London, England (1728).⁴ As well, material such as plaster was not approved of to masquerade as the richer material stone on the grounds that a church decorated in such a way supported falsehood. Pugin's illustrated publications, most notably, *Contrasts, or A parallel Between the Noble Edifices of the Fourteenth and Fifteenth Centuries, and Similar Buildings of the Present Day; Shewing the Present Decay of Taste: Accompanied by Appropriate Text* (1836),⁵ and *True Principles of Pointed or Christian Architecture* (1841) immensely influenced the course of the Gothic Revival towards scholarship and English precedent.⁶ Interestingly, Pugin's principles recognised that medieval models were useful only insofar as the architect adhered to the principle of "Utility."⁷ He believed that truth in architecture came by ornamenting only the purposeful, and in so doing, architectural truths equated Christian religious truths.⁸ Pugin's principle of truth in architecture reacted to fanciful Romanticized Gothic popular before 1840⁹ and the "recognition of the savagery of progress."¹⁰ Charles Dellheim points out that Pugin's texts in tandem with Samuel Taylor Coleridge's *On the Constitution of Church and State* (1836) and John Ruskin's *The Stones of Venice* (1851-1853) exemplify social consciousness "turned to the Middle Ages [...] as modern pilgrims in search of solutions to contemporary problems."¹¹ The social problems to which Dellheim refers include: the threat of social catastrophe via the "birth of class," the loss of effective and responsible political leadership, the introduction of the factory system and consequent division of labour, the resultant alienation of workers, and the loss of craftsmanship. Those factors are embedded in a eulogy to A.W. Pugin written by William Hay.¹²

Fig. 3. Trinity Church, Bermuda.
South entrance porch.
(Photo: Barry Magrill)



William Hay designed the Anglican Church of the Most Holy Trinity, Bermuda, to replace a similar but smaller Gothic Revival structure that was destroyed by fire in 1883. The plan reflects the fundamentals of ritual ecclesiology; its form is a Latin Cross consisting of a clerestoried nave with separately articulated aisles, transepts, and chancel. There are separately articulated identical north and south porches

located in the third westernmost bay (fig. 3). The outer walls of the chancel are in line with those of the aisles. That arrangement leaves ample space for the choir, organ, and vestry. The short, un-aisled transepts originally held seating, as did the crossing area. The transepts each have small north and south processional entrances, though neither still function. There is a processional entrance in the western wall containing a double-doorway. Triple lancet arrangements are used in the east end and transepts (fig. 4). That is echoed on the west end, except for the inclusion of rich mullions (fig. 5). The clerestory windows are paired lancets in bays divided by simple buttresses (fig. 6). Overall, carved ornament is kept to a minimum; however, the structure is impressive for the grandness of its scale. The dimensions are: nave length – 100' (30.5 m), width – 33' (10 m), aisle width – 14'6" (4.4 m); transept length – 28'3" (8.5 m), width – 32'6" (9.9 m), crossing tower – 32' (9.75 m) square. The height of the nave is 72' (21.9 m) and the tower reaches nearly 200' (60.9 m). At capacity, the church could hold one thousand persons comfortably.

By contrast to Hay's monumental church in Hamilton are the ruined remains of St. Peter's Anglican parish church (the "Unfinished Church") that sits open to the sky atop Government Hill overlooking the town of St. George's. William Hay's design of 1871 provided a cruciform church with a six-bay nave and polygonal apse (fig. 7).¹³ Archaeological precedent for a polygonal apse can be found at St. Laurence, Tidmarsh, Berkshire (c.1250).¹⁴ The "Unfinished Church" was intended to accommodate a parish of six hundred and fifty. There is a narrow nave with low side aisles and short transept arms (fig. 8). A separate vestry is accessible through the south transept and the crossing

piers support a modest tower and spire. A separately articulated south entrance porch is located in the second bay from the west with additional processional doorways in the transepts and the west end. The west doorway is a plain single-ordered portal set tightly in a gable. Hay projected the gable into the space of the western window, borrowing a design device that architect George Gilbert Scott used on the Cathedral in St. John's, Newfoundland. That arrangement allowed for a decrease in wall area without sacrificing window height. Paired lancets are used in the clerestory and aisle levels while the more elaborate windows are used in the west end and the transepts. Hood mouldings with labels are intended for these windows while the nave windows are likely to be recessed for protection from wind and rain.

On the one hand, William Hay adhered to the fundamentals of ecclesiological Gothic by adopting steeply pitched roofs, gabled entrances, pointed arcades and windows, and a tower with spire. Those features were typical of medieval Gothic churches found in England. On the other hand, Hay's churches dispensed with the broad use of carved details and expensive building materials that characterize English Decorated. Indeed, Hay's churches are not based on exact archaeological models, a principle that was adapted around 1850 by a new generation of architects eager to experiment in the Gothic spirit. For instance, William Butterfield's design for All Saints', Margaret Street, London (1849-1859), came to exemplify the High Victorian spirit looking away from a dependency upon archaeological precedent. Butterfield's solution to the small site squeezing the church up against the street was handled by an adept placement of the church at the rear of the site with its tower at the west end of the

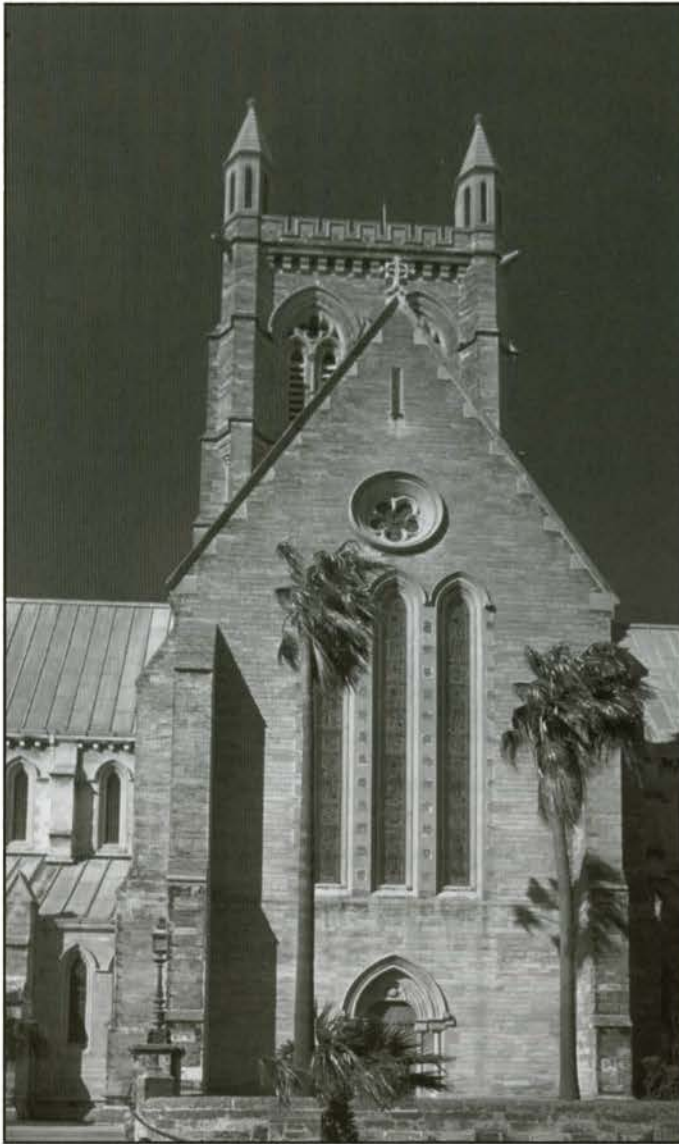
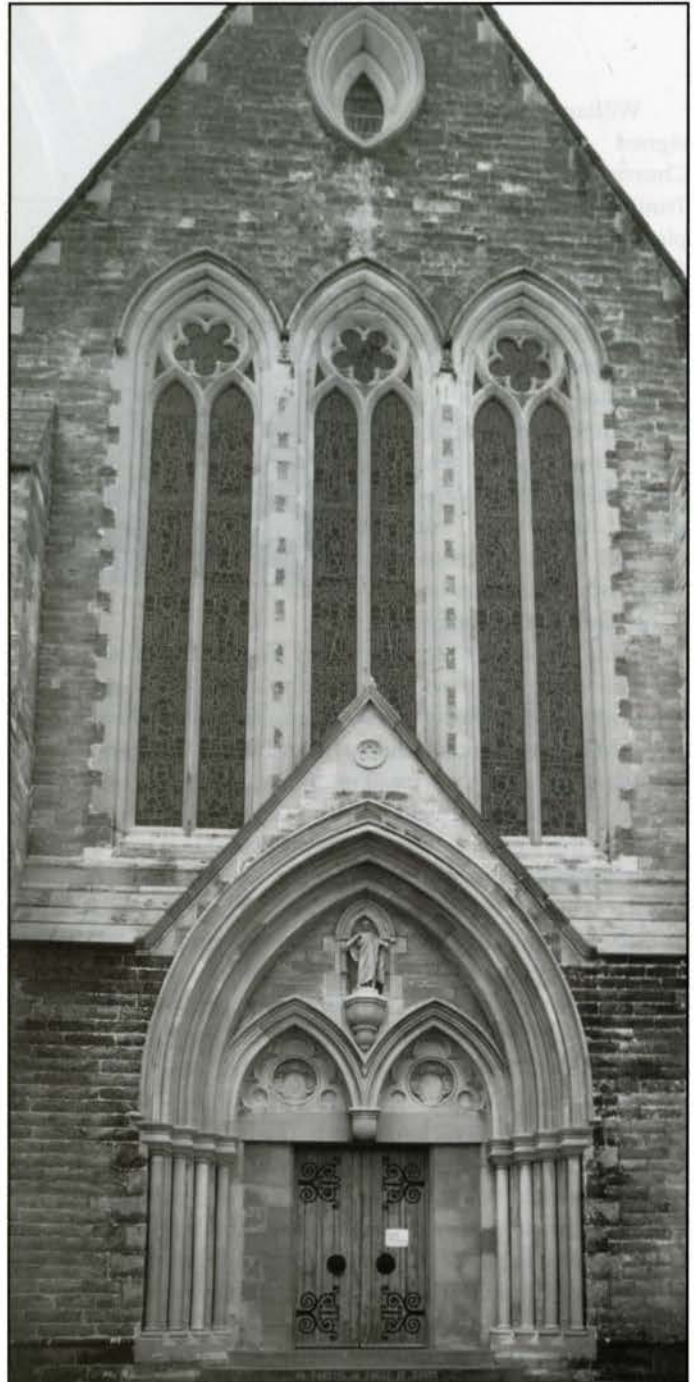


Fig. 4. Trinity Church, Bermuda. South transept with triple lancet. (Photo: Barry Magrill)

south aisle. In analogous consideration to the site, Hay's designs in Bermuda reduced the impact of wind, heat, and rain on the church structure. Those changes were made possible by loosening the rules of Ritual Ecclesiology using the principle known as "development." The term "development" described a progressive set of overriding practical considerations, which adapted the rigid principles of archaeological precedent, often substituting building materials.¹⁵ The purpose of "development" was to respond to the architectural needs and budgetary constraints of the contemporary colonial congregation without sacrificing the Gothic aesthetic. That is, nineteenth-century church builders and building committees wanted churches that looked like their medieval counterparts with inexpensive "modern" features. Unity of style and harmony of design were paramount considerations over archaeological precedent.¹⁶

Cost was a significant factor in the tropical colonies where a relatively small populace was expected to provide subscriptions for the entire church building campaign. The initial Trinity Church begun in 1844 cost no more than £5,000, a sum raised by

Fig. 5. Trinity Church, Bermuda. West processional entrance surmounted by mullioned triple lancet. (Photo: Barry Magrill)



local subscription.¹⁷ Despite their financial independence, the Bishop of the combined diocese of Newfoundland and Bermuda, Edward Feild (1844-1876) dictated how monies were distributed.¹⁸ Feild reminded the Bermudans of the principle of propriety, meaning that the church should be no more magnificent than

Fig. 6. Trinity Church, Bermuda.
Clerestory windows with paired lancets.
(Photo: Barry Magrill)

it needed to be to please God; not overly ornate in either style or dimensions.¹⁹ By the time of the church's rebuilding in the 1880s, construction costs had escalated and approximately £12,000 was spent. American supported trade and tourism translated into larger church subscriptions, the funds being raised in under two years.²⁰ Funds were allocated to speed of construction as opposed to the creation of an elaborately decorated smaller parish structure.

Since Pugin's *True Principles* merely foreshadowed "development," the question is: what other sources available to Hay promoted a relaxation of Pugin's Gothic principles? Parallel to the "medievalizing doctrine" that Pugin promoted for the Catholic Church ran similar threads through the Cambridge Camden Society (renamed The Ecclesiological Society in 1839) and the Oxford Society for Promoting the Study of Gothic Architecture.²¹ The Ecclesiological Society promoted the maintenance, restoration, and re-creation of Gothic churches, believing like Pugin, that the rise of Protestantism and Atheism was damaging to the Christian way of life. Hence, they supported the return to the morally superior Christian past through a re-creation of its architecture. That was accomplished through pamphlet series like, *A few Words to Church-Builders* and *A few Words to Churchwardens*, as well as their quarterly publication, *The Ecclesiologist*.²² The aim of that publication was to "convey useful information to all connected with church building or the study of ecclesiastical architecture and antiquities."²³ It is certain that Hay was familiar with *The Ecclesiologist*. We find him twice mentioned in the publication, once in a reference to the architect as a reader of its pages.²⁴ Hay's knowledge of Ecclesiological Gothic reflects both Pugin's

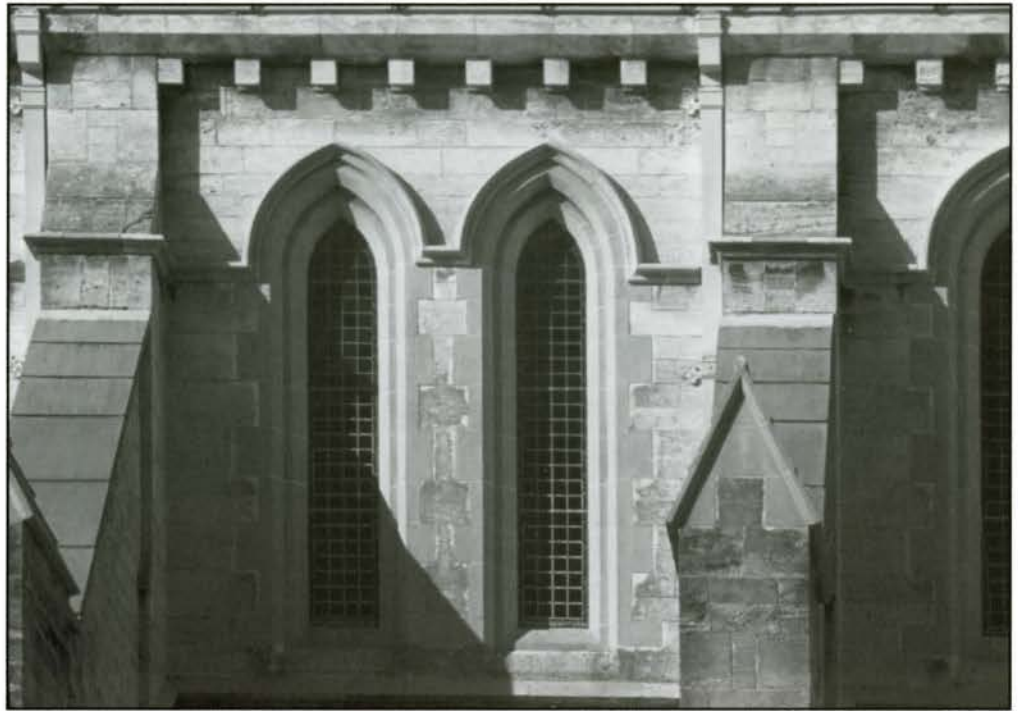


Fig. 7. St. Peter's, "The Unfinished Church", St. George's, Bermuda. View of east end.
(Photo: Barry Magrill)

principles and the Ecclesiological Society's view. However, his interest in "development" came from exposure to the Oxford Architectural Society.

At Oxford, there was "less zealotry and more philosophy,"²⁵ providing an atmosphere open to new ideas. The Oxford Society had a preference for the eclectic in terms of architectural theory. They admired the Perpendicular phase of English Gothic and even advocated the Romanesque Revival. Edward A. Freeman (1823-1892), a leading member of the Oxford Society, described



Fig. 8. St. Peter's, "The Unfinished Church", St. George's, Bermuda. View from north-east. (Photo: Barry Magrill)

architecture as being defined by periods of transition. He rejected the perfect exemplars of the Ecclesiologist Society as "the chilling lifelessness of mere antiquarian research,"²⁶ arguing instead for the idea of gradual "development."²⁷

The Oxford Society made their thoughts clear about "development." In 1852, *The Ecclesiologist* published a paper read before the Oxford Architectural Society by architect George Edmund Street, entitled "The True Principles of Architecture, and the Possibility of Development." He proposed that the strictness of archaeological precedent could be manipulated if the Gothic spirit was preserved. That was only possible by following the prime principle of truth. In that way, Street argued, plain glass could be substituted for stained glass since modern congregations preferred a copious amount of light to penetrate their interiors. Colour was advocated under such incarnation of "development," exemplified by tiled interiors.²⁸ Constructional or permanent polychrome exteriors formed of banded red and black brickwork were advocated on the grounds that they truthfully emphasised horizontal building techniques. Accordingly, verticality was only achievable through horizontal building techniques.²⁹ As well, brick could substitute stone in regions where brick-making was plentiful, since the church building should reflect native geology and architecture.³⁰ His argument illustrated the importance of adopting native vernacular traditions, saying that:

the steep-pitched roof is *not* an element of the Pointed style; on the contrary, steep and flat roofs are accidents depending entirely and solely on variations of climate; and I think it would be at least as absurd to build a steep roof in a tropical climate merely for the sake of effect, as it would be to build a flat one in a northern climate.³¹

Adaptation of the native vernacular, an idea dependant upon a degree of eclecticism, is exemplified by the hybrid style

of Frederick Stevens' work in India. Notably, his "Free-Style" designs for the Victoria Terminus, Bombay (1878-1887), and the Bombay, Baroda, and Central Indian Railway terminus, Bombay (c.1893), were a "significant step towards the synthesis of Indian and European forms with the incorporation of cusped arches and Deccani Muslim domes."³² That synthesis can be read through an Imperialist strategy of cultural

domination and appeasement. The power structure in Bermuda differed on the basis that colonization encountered no indigenous populace and colonizers willingly accepted English political rule and cultural standards. In Bermuda, the vernacular tradition, found primarily in domestic building, did not arrest the transmutation of Gothic Revival and its acceptance was moreover moderated by a mechanism of local circumstances.

The link between William Hay and the Oxford Architectural Society came through Bishop Edward Feild. In February 1844, Feild had contacted the Society for the referral of an architect to provide drawings for the first Trinity Church in Bermuda.³³ The Oxford Society recommended James Cranston, whose design had a proper ecclesiological character. Letters written to the Society from church officials and architects exemplify the function of the group as facilitator of appropriate designs. Sometimes the Christian Society for the Propagation of the Gospel acted as agent to the Oxford Society and potential patrons. Those relationships supported the transmission of proper Gothic design to remote places like the tropical colonies. We know that Hay had correspondence with the Oxford Society because he wrote to E.A. Freeman in 1845 enquiring about the cost of altering the roof of Arden Church, Aberdeenshire.³⁴

Hay's link to the Oxford Architectural Society is interesting because the 1884 design for Trinity Church resembles George Edmund Street's 1852-1854 restoration of the fourteenth-century Church of St. John the Baptist, Shottesbrooke, Berkshire. It was a highly publicized restoration and the Oxford Architectural Society fully published Street's drawings.³⁵ Though Shottesbrooke is Decorated and has a cruciform plan, its three-bay chancel, central-crossing tower with spire and twinned north and south entrances off the nave occur at Trinity Church. Shottesbrooke was considered a suitable model for churches in the colonies.³⁶ In that regard, one may point to a letter from Bishop John Medley to the

Fig. 9 Trinity Church, Bermuda. North transept showing carved and uncarved window labels. (Photo: Barry Magrill)



Oxford Society, questioning the suitability of Shottesbrooke as a model for a “small cathedral” in New Brunswick.³⁷

As opposed to an ideal or homogeneous aesthetic for tropical Gothic, we find architectural solutions applied along cultural lines and for site specificity. In William Hay’s brand of tropical Gothic, “development” is manifested in a conservative manner using the simplest phase of Gothic, called Early English.³⁸ The simplicity of the Early English style is typified by the use of thin lancet windows and Trinity Church, Bermuda, uses them in couplets and triplets. Practical and financial reasons were the paramount reasons for the simpler window forms. Those windows were easier and cheaper to construct in the tropical colonies using local workmanship since there were no mullions to carve and lancets could be used without the additional expense of hood moulds and labels.³⁹ Besides, broad Decorated windows were considered unacceptable to block the heat in tropical climates. Triple lancets in the east and west ends were used at Trinity Church to offer suitable lighting while blocking intense heat. Similar groupings are used for the transepts; however, the proportions there are too tall, far exceeding the 8:1 ratio advocated in *The Ecclesiologist* (fig. 4).⁴⁰ Mullioned windows were not advisable for tropical colonies and Hay heeded the advice, except in the west end. The west end was emphasised for its superior view from the town. A further precaution against rain and high winds that Hay adopted involved recessing windows into the space of the wall. The result is a near fortress-like appearance in a monumental structure, the largest and most elevated on the island, structurally and visually designed to withstand hurricane force winds. In practical terms, it was cost effective to forego ornament in favour of building size to accommodate more parishioners.⁴¹

Decorative ornament may have been minimized on the exterior of Trinity Church because carved details posed a safety risk in high winds. For example, *The Ecclesiologist* condemned the design for St. Andrew, Mogra Hât, Bengal, for adopting, “without scruple, pinnacles, buttresses, and even embattled parapets, although we have been told over and over again that all such stonework would soon perish and crumble in the heat of that country.”⁴² Hay’s method of exterior ornament was rather more reserved. At Trinity Church, there is a corbel table running below

the eaves of the roof. The corbels are in block form, though no doubt they were originally intended for modest foliated carving. The corbels were installed un-carved since nineteenth-century historians believed that medieval carving was done *in situ*. The north transept at Trinity Church, Bermuda, has window labels in both carved and un-carved states appearing side-by-side (fig. 9).

For the Unfinished Church in St. George’s, Bermuda, Hay planned just a hint of permanent polychrome in the spandrels of the main arcade. Hay’s sparing use of polychrome was nearly ten years behind the completion date of All Saint’s, Margaret Street, London, indicating that colonial architects and patrons imagined the England they left behind. In Bermuda, elaborate church layouts with decorative sculptural schemes were difficult, if not completely impossible, to build using local labour and materials. Hay’s preference for the simplicity and ease of construction of Early English design illustrates how colonial practitioners could be out of fashion.⁴³ For example, Trinity Church was built in 1884 using the simpler style, while in England complex experiments in medieval proportion, dubbed Late Victorian Gothic, were constructed. Early English, advocated by the Oxford Society “as the simplest and least expensive” choice available, was desired in the tropical colonies, especially when the commission was a costly, large-scale church.⁴⁴ The description of Early English as “simple, sober, and retiring”⁴⁵ perfectly illustrates the design of Trinity Church. By keeping carved decoration to a minimum, Hay was able to build a church of massive proportions while avoiding criticism for foregoing the preferred parish church model often thrust on the colonies.⁴⁶ Besides, Trinity Church was intended as a Pro-Cathedral, responding to the needs of the congregation and the expressed desire of Bishop Feild.⁴⁷

It was common medieval practice to emphasize areas of higher liturgical importance with embellished ornament. That



Fig. 10. St. Peter's, "The Unfinished Church", St. George's, Bermuda. Tower pier composed of red brick. (Photo: Barry Magrill)

practice was copied in the nineteenth century. At Trinity Church, Bermuda, the chancel is subtly more ornamented than the nave and carved elements are reserved for the north and south porches. The porches are identical, having three orders to the arch comprised of a row of dog-tooth and pyramid forms sandwiched between the first and second orders. Simple mouldings are used throughout. The capitals are plain, chamfered squares surmounting detached shafts. The inner portals have a single order with a thin band of articulation covered by a hood mould terminating in foliate labels. There are cushion capitals keyed into the door-jambes that sit atop detached shafts. The porches are rib-vaulted in stone, articulated with simple roll moulding. On the interior, the main arcade has plain octagonal capitals that rest upon polished granite shafts imported from Peterhead, Scotland. The capitals were intended for carving with foliate designs, though by no means elaborate, as indicated in a drawing published in the *Bermuda Pocket Almanac of 1889*. The capitals and corbels remain in block form because the building budget was fully expended in efforts to create the functional church. As was so often the case, subsequent income became allocated to church maintenance while ornamentation was disregarded.

Another dimension of "development" addressed the fundamentals of building materials usage. The native materials dialectic was waged over the principle of truth, while cost-effectiveness became its strategy. G.E. Street advocated for the use of local stone, but its actual employment in the colonies was determined by its quality relative to imported materials.⁴⁸ Availability of local material was weighed against cost, durability, and aesthetic qualities of imported materials. In Newfoundland, for instance, it was discovered that the Cathedral in St. John's could not be built from ubiquitous local limestone, because it was of such poor quality that it shivered to pieces when exposed to frost.⁴⁹

be carved into, necessitated the importation of fine-grained limestone from Caen (Calvados), France, to face the windows.⁵¹ In that case, in the mid-nineteenth century, practitioners engaged in reviving gothic form for church building in remote outposts of the British Empire balanced style with necessity, while striving for correct ecclesiological designs; it was more cost-effective to spend money on higher quality materials not locally available. Similarly, the structural superiority of Wallace Nova Scotia Freestone was exemplified by its usage in the pier towers at Trinity Church. More expensive materials, though aesthetically pleasing, drew funds away from the completion of interior carving. By contrast, native cedar and pitch pine were put to good use for the open timber roof, thus satisfying the Puginian principle of a material's truthful application and the practical value of local material.

For the "Unfinished Church" in St. George's, the choice of materials was constricted by the small size of the parish and its building budget. Local limestone was used for the entire fabric of the church except in the nave columns and tower piers, which had a core of red brick for additional support (fig. 10). Drawings by William Hay and his partner George Henderson, found in the Bermuda Archives, indicate stone and brick were to have been covered in plaster. A.W. Pugin would definitely not have approved of such a deception, however, cost-saving measures could override archaeological precedent in the remote colonies. The principles of necessity and truth became unified to make acceptable some techniques not practiced in the Middle Ages. In that regard, cost was the deciding factor. The St. George's building committee could not rely on large subscriptions from their congregation, nor was it commonplace to expend public money on church building enterprises. Indeed, after the first Trinity Church burned in 1883, funds were diverted away from the campaign to re-start work at the St. George's church for the rapid completion of the Pro-Cathedral in Hamilton. The substitution of

Fig. 11. Trinity Church, Bermuda.
Reinforcements above the aisle.
(Photo: Barry Magrill)

cheaper and more practicable materials can be seen in light of contemporaneous developments for architectural cast iron. Between the 1850s and late 1890s, cast iron usage increased from a support function to a unique aesthetic statement, its apex being a church predominantly composed of iron.⁵² Interestingly, iron was the least expensive and most easily constructed solution to “modern” church building, though its acceptance, as a viable product, was never universally achieved.

Errors made during construction of Trinity Church escalated building budgets, an inevitable factor in the tropical colonies. Local workmanship in the tropical colonies was not an uncertain entity but a quantifiable factor; labour was always unskilled compared to English standards.⁵³ The errors at Trinity Church were attributed to the improper supervision of unskilled local workers. As a result, English-trained and highly-skilled masons were imported to Bermuda to complete major sections of work, thereby increasing costs. In fact, the reason for Hay’s initial involvement in Bermuda was to correct substandard workmanship found in the first Holy Trinity Church. In 1849, the tower piers were strengthened with cement because they were discovered to be shifting during construction. Four masons from Newfoundland were brought to the island to correct the problem. After the 1883 fire that destroyed the church completely, the foundation was discovered to have had large cracks wedged with broken limestone and dry lime; no hydraulic properties were present.⁵⁴ Furthermore, the errors, mentioned at the beginning of this paper, encountered in roofing the first Trinity Church are surprising given the importance of proper roof construction and ventilation in tropical climates.



Fig. 12. Trinity Church, Bermuda. Main arcade, twinned columns with transverse arch and arch segment in the aisle.
(Photo: Barry Magrill)

In terms of improvements, Hay created a system of openable windows for the clerestory that, in tandem with ventilation at the eaves, satisfied the problem caused by excessive heat.⁵⁵ Hay’s solutions were practical and by no means extreme. An extreme solution was exemplified by a design proposed for the Cathedral of Las Palmas, Grand Canary, in which it was suggested that Gothic churches should have no windows at all. Instead, thick walls were advocated in order to cool the air; the retention of cool air, in cave-like fashion, was thought superior to the expulsion of hot air.⁵⁶ By contrast, the experience in Guiana

was that churches were insufferably hot during heavy rains while the windows had to be shut. The proposed solution in their case was “to construct large semi-circular or polygonal buttresses, hollow, and pierced externally to windward;” the editor of *The Ecclesiologist* approved of the modification.⁵⁷ Practitioners in Ceylon adopted similar methods of ventilation using opened doors and windows, aided by “well managed planting” to offer shade from heat.⁵⁸ The common denominator found in those examples is the value placed on architects residing in, and designing for, tropical climates.

Practitioners residing in tropical colonies best understood the modifications needed for churches in those places versus their relative costs. Hay’s system for ventilating the clerestory was not repeated in the second Trinity Church, presumably as a cost-saving measure. Nevertheless, other modifications were made to address the problem of high winds and rain. Masses of masonry were added to the three central bays of the nave. On the exterior, they appear like spur walls projecting from the buttresses above the aisles (fig. 11), however, on the interior they are seen to continue as transverse arches in the aisles. The transverse arch does not come to rest on the column of the main arcade, but on its pair placed half a foot (15.24 cm) into the aisle. Since the paired columns do not appear on the plan or the presentation engraving, it must have been decided during construction that the wall’s three-foot (0.91 m) thickness was insufficient to withstand high winds, necessitating further buttressing. Hay’s partner, David Stirling, assisted Hay in that matter.⁵⁹ In the aisles we find an awkwardly sandwiched fragment of arch respond between the paired capitals (fig. 12). Presumably, the arch fragment was to have been hidden behind the proposed stone and concrete aisle vault.⁶⁰ When funds ran out for the church finishing, the interior structural framework of the buttress was left exposed. The necessity for such reinforcements was a skill borne of years spent in a tropical climate.

The arrival of “development,” midway through the nineteenth century, marked a style of Gothic in the tropical colonies based upon plain but bold churches whose core remained correct from an ecclesiological standpoint. Constricted building budgets, the notion of propriety, and above all the severe climate conditions necessitated the plain decoration of the church structure. It is particularly in the tropical colonies that we find budgetary restrictions affecting the amount of imported stone, number of highly-skilled workers, and deployment of carved ornament. Climate required design modifications that subtly altered a church’s aesthetic. As a practitioner living in Bermuda, Hay bent the rules of ecclesiological Gothic into a special brand of Gothic

style, which practitioners termed “tropical Gothic.” “Tropical Gothic” did not obey ecclesiological rule, nor was it based upon experimentation in Gothic style. Instead, practitioners in tropical climates adapted solutions based upon utility and necessity, augmented by the remoteness of the places in which they worked. Further study of “development” strategies, especially in the arena of post-colonial power and knowledge structures, is warranted for other remote parts of the British Empire. Though “development” marshalled practical solutions in Bermuda to building problems amplified by the transmutation of ecclesiological archaeology, there may be other mechanisms as yet undiscovered.

Notes

1. At various times Hay partnered with architects Thomas Gundry, George Henderson, and David Stirling, each of whom carried on successful practices of their own.

2. For bringing William Hay’s Bermuda churches to my attention special thanks are in order to Professor Malcolm Thurlby, whose encouragement and assistance in my research has proven invaluable. Any anomalies found in the opinions expressed in this paper are, on the other hand, entirely my own.

3. Hay was the architect of St. John’s Church at Longside, near Peterhead, Scotland (1853). He was Clerk-of-Works for George Gilbert Scott’s Cathedral in Newfoundland. In Toronto, he designed the Toronto General Hospital (1855), the Gould Street United Presbyterian Church (1855), the House of Providence (1855-1858), the initial components of St. Basil’s Church in St. Michael’s College (1856), the school addition to Holy Trinity Church (1858), and the Yorkville Town Hall (1859-1860). For the Ontario provincial government he extended the parliament buildings on Front Street (c.1850). Outside of Toronto, he built the Commercial

Bank of Kingston, Ontario (1853). He built St. Andrew’s Presbyterian, Guelph (1857-1858), St. George’s (Anglican) in Newcastle (1857), St. George’s, Pickering Town (1854), St. Paul’s, Southampton (1861), and St. Luke’s, Vienna (c. 1850). Armstrong, Frederick H., 1982, *Dictionary of Canadian Biography*, Toronto, University of Toronto Press, 11, p. 391-392.

4. Westfall, William, and Malcolm Thurlby, 1990, “Church Architecture and Urban Space: The Development of Ecclesiastical Forms in Nineteenth-Century Ontario”, David Keane, and Colin Read, eds., *Old Ontario: Essays in Honour of JMS Careless*, Dundurn Press, Toronto, 118, in which the authors point out that John G. Howard’s Holy Trinity, Chippawa of 1840, is the last gasp of Romantic Gothicism in Ontario. For illustrations see Macrae, Marion, and Anthony Adamson, 1975, *Hallowed Walls: Church Architecture of Upper Canada*, Toronto, p. 28-30, ills. II - 12/13.

5. Privately printed in 1836 and commercially published in 1841.

6. Clark, Kenneth, 1962, *The Gothic Revival; An Essay in the History of Taste*, London, Butler and Tanner, 3rd ed. p. 140-141. Clark suggested that Pugin was a better designer than architect. He said Pugin’s own architecture was

faulted because he did not “dream in three dimensions.” The interiors were crowded, masses were uncoordinated, and proportions were bad. Clark quoted Pugin, himself, saying, “I have passed my life in thinking of fine things, studying fine things, designing fine things and realising very poor ones.” See, Pugin, Welby, 1843, 1st ed. (reprint 1969), *An Apology For The Revival of Christian Architecture In England*, Frome, Somerset, Butler and Tanner Ltd., 15. Though Kenneth Clark was disappointed that Pugin’s buildings did not answer the expectations raised by his writings, he admitted Pugin embodied a “knowledge of medieval detail [that] has never been surpassed.” See, Clark : 138.

7. Pugin, *An Apology* : 15 - 16n and 39. “[N]o features about a building which are not necessary for convenience, construction or propriety [...] that all ornament should consist of enrichment of the essential construction of the building.” See, Pugin, Augustus Welby, 1841, *The True Principles of Pointed or Christian Architecture*, London, Henry G. Bohn, p. 1.

8. Pugin, Augustus Welby, 1841, “On the Present State of Ecclesiastical Architecture in England”, *Dublin Review*, 20, May, p. 42. On matters of faith, Pugin stated: “if the piety, faith, and zeal of bygone times are revived, then equal result will soon be attained.” See also, Brooks, Chris, 1999, *The Gothic Revival*, London, Phaidon Press Limited, p. 224 for comments about the Anglican Church suffering through religious scandals and being politically unprepared to handle the social and economic revolutions in the early nineteenth century.

9. James Wyatt’s Fonthill Abbey, Wiltshire (1796-1812), and Horace Walpole’s Strawberry Hill, Twickenham (1752-1770), are examples of Romantic Gothic

illustrated in Brooks : ills. 83 and 49-54, respectively. Pugin also despised the Classical idiom on the grounds that it was untruthful because its ornament served no useful function and its theological basis was Pagan rather than having a proper Christian religious ethic, like Gothic.

10. Dellheim, Charles, 1982, *The Face of the Past*, Cambridge, The University Press, p. 15.

11. Dellheim : 15.

12. Hay, William, 1853, “The Late Mr. Pugin and the Revival of Christian Architecture”, *Anglo-American Magazine*, 2, p. 70.

13. Construction was not begun until 1874. By the late 1870s, a feud among the parish over whether the church should be High or Low Anglican caused the building to be abandoned before it was finished. A freak tornado in 1926 tore away the roof.

14. An illustration of Tidmarsh can be found in Rickman, Thomas, 1817 (re-print 1881), *An Attempt to Discriminate the Styles of Architecture in England*, Parker, Oxford, plate 5.

15. Street, George Edmund, 1844, “The True Principles of Architecture, and the Possibility of Development”, *The Ecclesiologist*, vol. 3, p. 248.

16. Anon, 1856, *The Ecclesiologist*, vol. 17, p. 414.

17. In Cameron, John, 1864, “Hints on Building Churches, Schools and Parsonages in Places Exposed to Tropical Heats and Rains”, *The Ecclesiologist*, vol. 25, p. 15-18, it is noted the average cost of churches in India is approximately £4,000.

18. Feild asked the first Trinity Church building committee to avoid their plan to complete the church in two years because it would put an extreme financial strain on a single generation of

parishioners. Feild remarked that he would not have given the complete set of drawings had he known of the rush to completion. Nevertheless, the first Trinity Church took twenty-five years to complete. See, Reid, Thomas, 1886, *Trinity Church, Bermuda: A Sketch of its History Drawn From Various Sources*, Hamilton, Bermuda, The Royal Gazette Press, 25, Appendices G and D.

19. Reid : Appendix E for letter from Feild dated March 6, 1855.

20. Reid : 16 and 25. £3,000 was provided by insurance from the fire and the remaining sum was subscription.

21. Thurlby, Malcolm, 1987, “Nineteenth-Century Churches in Ontario: A Study in the Meaning of Style”, *Historic Kingston*, 35, Jan., p. 99.

22. Further into its years of publication, *The Ecclesiologist* advocated for the re-integration of ritual into Anglican worship and the space of the church. Before this occurred in the 1830s, “the least suggestion of symbolism—a cross on a gable or on a prayer-book was rank popery.” Ritual was suspect. Clergymen wore black and preached from the pulpit to a congregation seated in pews on the main level and the gallery. Chancels were unused in ancient churches or non-existent in new ones. See, Clark : 154. For example, in the Victorian era, the thirteenth-century church of St. Michael’s, Longstanton (Cambridgeshire) screened its chancel off with a green curtain, housing in it a children’s school. See, Anon, 1962, *The Ecclesiologist*, 2, p. 171, in White, James F., *The Cambridge Movement: The Ecclesiologists and the Gothic Revival*, Cambridge, The University Press, 6. The general malaise towards medieval church buildings, highlighted by a lack of piety, was unacceptable to the Ecclesiologists. “The care of a

church is a thing not to be slighted,” the Society stated, “churches have for the most part been left to run to decay, their roofs to fall in, their mouldings to be broken, and their windows to be blocked up [...] there are yet greater evils. For many town-churches have been so spoilt by having misshapen additions made to them [...] that now unless you were told it you would often scarcely know you were in a church.” See *A Few Words to Churchwardens*, Cambridge, Cambridge Camden Society, 1841, 5. The Society argued that God demanded “His house [should have] all the arrangements necessary for their performance.” See, Clark : 156. In that respect, their doctrine was an expansion upon Pugin’s *true principles*, which insisted upon fidelity to medieval precedent and architectural truths in terms of structure, functions, and materials.

23. Anon, 1841, “Address,” *The Ecclesiologist*, 1, No. 1, p. 1. Buoyed by Pugin’s *True Principles*, the Ecclesiological Society promoted axially arranged churches with a focus on the altar, a distinct chancel, and interior planning to allow for processions. They detested box pews and discouraged the politics of rental fees. Like Pugin, they believed that the Decorated phase of English Gothic was the summit of that country’s architectural output.

24. Construction of the first Holy Trinity, Bermuda got favourable press in *The Ecclesiologist* and, in connection with a wooden church in St. Francis’ Harbour, Labrador, Hay was commended for being a self-confessed reader of its pages. See, *The Ecclesiologist*, 9, 1849, 397 and *The Ecclesiologist*, 11, Oct. 1850, 200, respectively. Hay was not alone. The Ecclesiologist’s pages are filled with letters from readers, both professional and amateur architects, seeking advice for the