

OBSERVATIONS ON THE STRUCTURE OF ST. GILES. BY ROBERT
ROWAND ANDERSON, ARCHITECT, F.S.A. SCOT., AND ANDREW KERR,
ARCHITECT, F.S.A. SCOT.

By the invitation of Dr. William Chambers, J. R. Findlay, Esq., Secretary to the Society, Robert Rowand Anderson, F.S.A. Scot., and Andrew Kerr, F.S.A. Scot., architects, visited St. Giles' Cathedral, Edinburgh, on Saturday the 4th March, and were conducted over the building by Mr. William Hay, the architect, under whose direction the works in restoration were being carried out. Our attention was specially directed to the outline of five pointed windows, which had been built up, situated immediately over the arches, between the south pillars of the nave. The jambs of the built up windows on the south side of the wall indicate that the sills had been fully three feet below the under side of the stone vaulted roof of the south aisle, which is built against the area of the windows. Upon the east pillar are the remains of two springers of arches, at some distance below the present capitals; the lower springer appears to have been that of the original arch, and the one above of a higher arch, introduced probably when the south aisle was vaulted, and the five chapels added,—the present arch being inserted in 1829, when, along with other works, the old vaulting of the centre aisle of the nave was removed, the side walls raised, new clerestory windows formed, and a plaster ceiling substituted for the old stone vaulting. Upon the west

wall of the tower, the outline of the centre aisle vaulting is seen, with the raglet or recess where the protecting stone paving was inserted. A few feet above this is also the outline and rests for a more recent irregularly sloped roof of timber and slate, resting upon the high north wall of the centre aisle of the nave, and sloping towards the south. These roof outlines, and those of the five windows, are shown upon the accompanying tracing supplied by Mr. William Hay.

To arrive at the period to which these windows belong, it is necessary to glance at the early history of the Cathedral, passing over the inquiry about a church of an older date having existed upon the site. It is probable that the church to which the Norman door belonged, which was built up towards the end of last century, and finally taken down in 1829, was erected during the reign of Alexander I. (1124-1153), and may have been the church burned in 1355 by Edward III., after an existence of about 231 years. After this a new church was evidently erected, as we find a contract entered into in 1380 to vault over a part of the church. This church was also burned by Richard II. in 1385, being a period of thirty years between the dates of the respective burnings. The portion of St. Giles indicated by the octagonal pillars, embracing the choir, transepts, nave, and central tower, is evidently the church erected at this period. The part vaulted in 1380 may have been the choir and side aisles only, but if the vaulting of these was included in the original contract, then the part following to be vaulted would evidently be the whole or a portion of the transepts. It has been suggested that the roof in 1385, was of timber, but as a "part" of it was vaulted, this remark, then, only applies properly to the nave, which, as indicated by the large built-up windows, had a clerestory immediately over the arches resting upon the pillars, the outside walls of the aisles being restricted to such a height as would admit of a properly constructed timber roof, with more or less slope as would be deemed expedient.

The vaulting of the north aisle of the choir is the oldest in the building, and remains apparently in its original state. In the contract of 1387, for erecting the five chapels, from the west gable to the great pillar of

the steeple, upon the south side of the original south aisle of the nave, also for vaulting the chapels and aisles where the altars shall stand (evidently the nave), the vaulting is to be, not in accordance with what exists within the church, but in the same manner and style of masonry as the vault above St. Stephen's altar in the Abbey of Holyroodhouse. To carry this into effect, higher roof vaulting was necessary, involving the removal of the outside wall of the south aisle, the substitution of pillars, and raising the nave arches to admit additional light, equivalent to what was obtained from the clerestory windows, required to be built up, which formerly gave the principal unobstructed light to the nave. The windows upon the south side of the choir, as shown in the elevations made in 1821, have pointed arched heads similar to those in the nave, while those upon the north side of the choir have flat two centred arches, indicating that they have been inserted, or reconstructed at a much later period.

The pointed arch was generally adopted in the church of 1355, but it was almost universally adopted throughout Scotland long before that period. In Arbroath Abbey, founded in 1178 and consecrated in 1233, being 55 years in building, there are examples, not only of the pointed arch, but of the moulded, round, and octagonal pillars, 122 years earlier than the portion of St. Giles Cathedral now under consideration.

While endeavouring to ascertain the area of the church erected after 1355, reference was made to several works upon Gothic architecture, some of which stated that the architects were guided by certain rules and proportions in preparing their designs.¹ Hawkins, in his *Investigations of the Principles and Proportions of that Style called the Gothic*, page 183, quotes from a report upon the dome of Sienna, dated 17th February 1321, that it was not being proceeded with according to the measure in

¹ The diagram exhibited to the meeting may be briefly explained as follows :—The diameter of the large circle extends from the centre of the east octagon pillars to the middle of the west wall,—the centre of the circle is upon a line forming the west side of the tower pillars. With a radius extending from the north and west points of the cross diameters, describe from the north and south points an oval pointed figure, giving the inside width of the choir and nave. With the space measured upon the diameter, from this oval figure to the outside of the original circle, being set inward

length, breadth, and height which the rules for a church require. An effort was therefore made to ascertain how far these applied to St. Giles, and the result is shown by a diagram upon a lithographed copy of the plan prepared in 1821, eight years before the works were commenced under the direction of the late Mr. Burn.

In a contract, printed at length in the *Historical Notices of the Collegiate Church of St. Giles*, page 20, dated 1491, containing regulations for the hours of attendance at St. Giles of the master mason, his colleagues, and servants, it is provided, that after four o'clock afternoon, they "gett a recreation in the common ludge be the space of half-an-hour." As this is a special requirement to meet in the "luge," it is probable that it may have been for technical instruction, the mason lodges of that period being understood to have discharged that duty. Apart from the geometric forms frequently indicated in the details of ancient buildings, the actual lines from which many of them were set out are to be seen upon the faces of the small elevated cusped windows, and beds of moulded pillars. The geometric forms were not used to such an extent as to imply mechanical servility, but to define relative proportions, leaving the grouping, mouldings, the character of the entire decoration, and general features of the design to the ability of the architect.

About the beginning of last century it is recorded in the books of the old Lodge of Aitchison's Haven, near Edinburgh, that a complaint was made of the inferiority of the mason craftsmen, and that the office-bearers

from the sides of the oval figure, gives the centre lines of the two rows of choir and nave pillars. With half the diameter of the oval figure describe a circle from the original centre, intersecting the middle lines of the pillars, which gives their position. One-fifth of the space between the pillar centres gives the thickness of the tower pillars, and one-ninth of the same space the thickness of the remaining pillars. With a radius of half the diameter of the original circle, intersecting the centres of the smaller ones, defines the extent of the transept. Thus giving the limits and proportions of the entire church of 1355.

It will be observed that the original circle marks the middle of the extended wall of the south transept, and the extension of the choir is defined by half its radius, indicating that the original geometrical figure, guiding the proportions, had been recognised by the architects of the more recent additions.

were therefore directed in future to examine the apprentices as to their knowledge and skill in the craft. In 1717, the Grand Lodge of England directed that architectural studies and pursuits be excluded from the lodges, thus extinguishing the last feature of the old masonic technical schools.

[It is not insisted upon that the diagram described was that upon which the plan of St. Giles' Church was designed, but the coincidences are so direct as to suggest a careful examination of our ancient buildings, with the view of developing more fully a subject of so much architectural and historical interest.]