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QUEENS CROSS CHURCH

A MEASURED DRAWING SURVEY

BY NICHOLAS A. SOMERVILLE

ROLANDO V. MORETTI

DAVID A. CRAWFORD

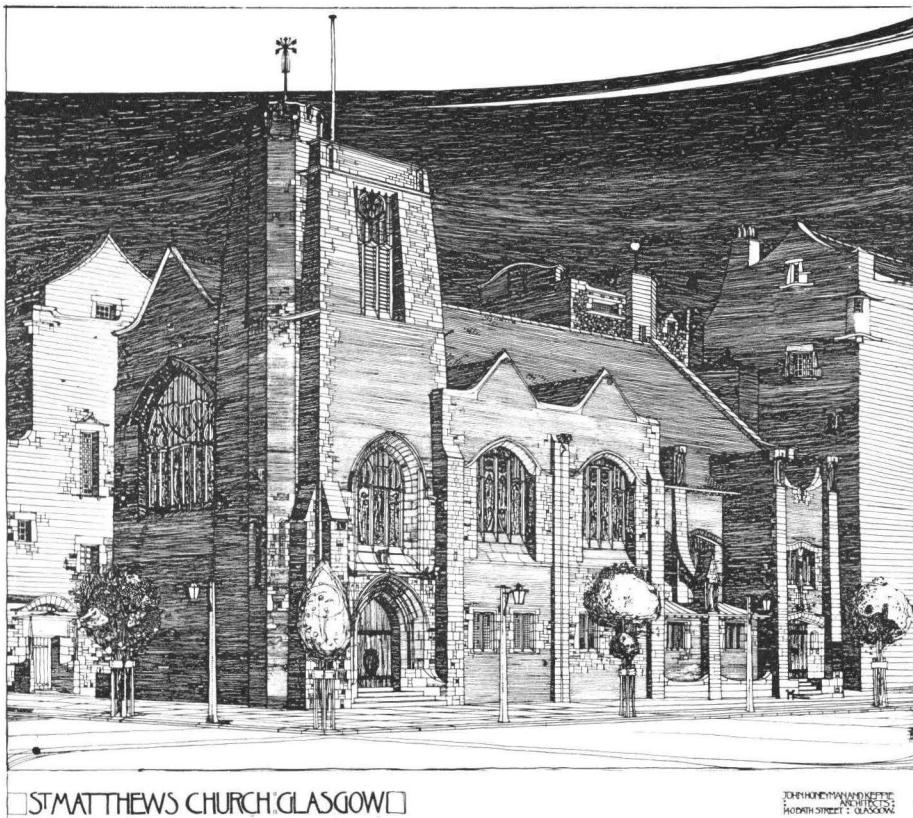


1. WEST WINDOW

72912

QUEEN'S CROSS CHURCH
GLASGOW

QUEEN'S CROSS CHURCH, GLASGOW
ARCHITECT : CHARLES RENNIE MACKINTOSH



A MEASURED DRAWING STUDY PRESENTED TO
THE MACKINTOSH SCHOOL OF ARCHITECTURE
BY NICHOLAS A. SOMERVILLE
ROLANDO V. MORETTI
DAVID A. CRAWFORD
AS PART OF THE EXAMINATION IN ARCHITECTURE

APRIL 1989

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ACKNOWLEDGEMENTS

We would like to acknowledge the help of the following persons who have assisted in many different ways with the production of the drawings and compilation of this report.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

The St. Matthew's - Queen's Cross Church, 1897-99 by Charles Rennie Mackintosh, situated on the corner of Maryhill Road, Garscube Road and Springbank Street, Glasgow, was originally built as a mission from Matthew's Free Church in Glasgow.

The building is now the International Headquarters of the Charles Rennie Mackintosh Society. This change of use may be explained by the massive programme of urban renewal which has taken place in the post-war years, during which large areas of formerly densely populated inner city areas were flattened (including much of Maryhill) and the local population moved to peripheral housing schemes. Another major factor was the fall off in church attendances during this period, and due to a diminishing congregation Queen's Cross amalgamated with Ruchill Church, another project in which Mackintosh was involved. Queen's Cross was vacated by the Church of Scotland in 1976.

Mackintosh undertook the Queen's Cross project immediately after finishing the competition for the Glasgow School of Art, whilst working for the Glasgow firm of Honeyman and Keppie. The original commission was undertaken on the basis of a large donation by one of the office bearers of the original church in Bath Street,

Mr. David McLean. The site was procured and the plans prepared.

The project was, however, somewhat slow to develop - the foundation stone was not laid until June 1898, and the church was opened for worship in the Autumn of 1899. This delay may be in part attributed to the difficult nature of the site, on a cramped awkwardly shaped plot at a busy road junction, with severe access and spatial disposition problems. The original brief called not only for a galleried church to seat some 700 persons, but also for a separate linked hall with direct access to the street. Additional factors were the close proximity of a warehouse to the north (now demolished) and a four storey tenement block posing problems of scale and restricted light, especially on the north and east sides.

The initial impression is of a very traditional building, Scottish Baronial, almost Gothic in approach, its perpendicular windows, decorative pointed arches, and flying buttresses on the south elevation.

Mackintosh was very influenced by the Scottish Baronial form, on which he had presented a paper to the Glasgow Architectural Association in February 1891.

Closer observation reveals, however, that this is not merely a pastiche of an earlier style, but an attempt at "developing a meaningful iconography for a new age out of the forms of the past" (1). Elements such as the massive steel roof ties with their exposed rivets are not items found in traditional church construction but yet can be compared with the adzed timbers in the medieval roof. This steelwork also echoes the heavy industrial engineering, ship building etc. that was at its peak at that time, with Glasgow as the second city of the British Empire and in the forefront of advances in industry and technology. Mackintosh cannot fail to have been affected by this, but he also managed to retain the strong influence of the more traditional approach to building.

Further illustration of this can be seen in the design of the large decorative east window. It is traditional in that of location and size but is novel in the simplicity of the colours of the stained glass used, and in the writhing organic forms of the windows tracery. The octagonal tower, whose form also appears on the east elevation of the Art School is an other feature of Mackintosh's own. The apparent source (2)

was the Merriot Church in Somerset, which Mackintosh sketched while on holiday.

It can clearly be seen, therefore, that Charles Rennie Mackintosh was trying to achieve a new modernity emanating from traditional forms.

The importance of Charles Rennie Mackintosh as a Glasgow architect cannot be under-estimated. He is perhaps the leading architect originating from the City, and the Queen's Cross is one of the relatively few examples of his work that survive virtually intact, albeit in a different role from which it was originally intended.

At the time Mackintosh was employed by Honeyman and Keppie Architects, and this commission was one of Mackintosh's very earliest executed projects. It followed close on the heels of his success in the competition for the Glasgow School of Art. It was important for Mackintosh, therefore, as a young architect, to underline his credibility as a designer by following this up with another successfully executed design. He was seeking to achieve an acceptable niche for a new contemporary approach to design, but which was based on traditional forms. What

better way then to illustrate this by successfully tackling the problem of designing a church, an apparently traditional building type, in a modern manner. The fact that he was largely able to do so lays great emphasis on his skill as an architect. Frank Worsdall (3) describes the design of the church as "the product of first maturity which saw some of his (Mackintosh's) finest work".

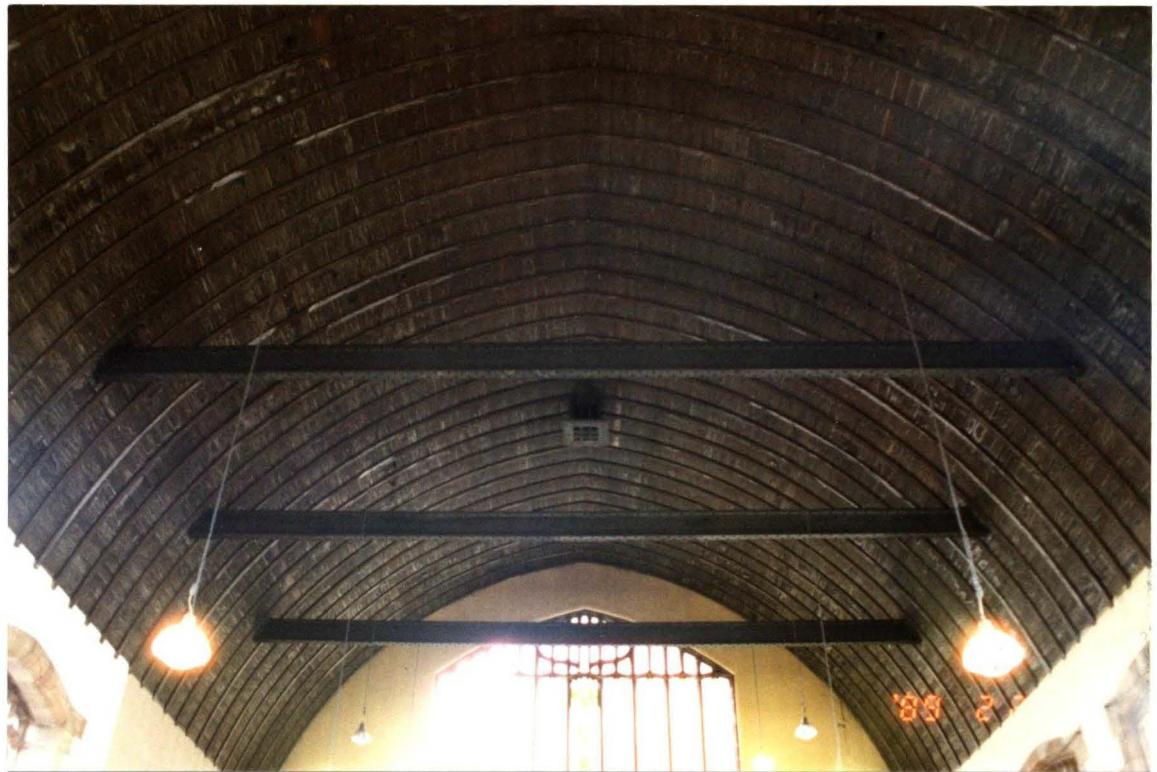
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INTRODUCTION AND BACKGROUND

1. Macleod, Charles Rennie Mackintosh, Architect and Artist (1983) p.74
2. Howarth, Charles Rennie Mackintosh, and the Modern Movement (1983) p.177
3. Worsdall, Victorian City, A Selection of Glasgow's Architecture (1982) p.153

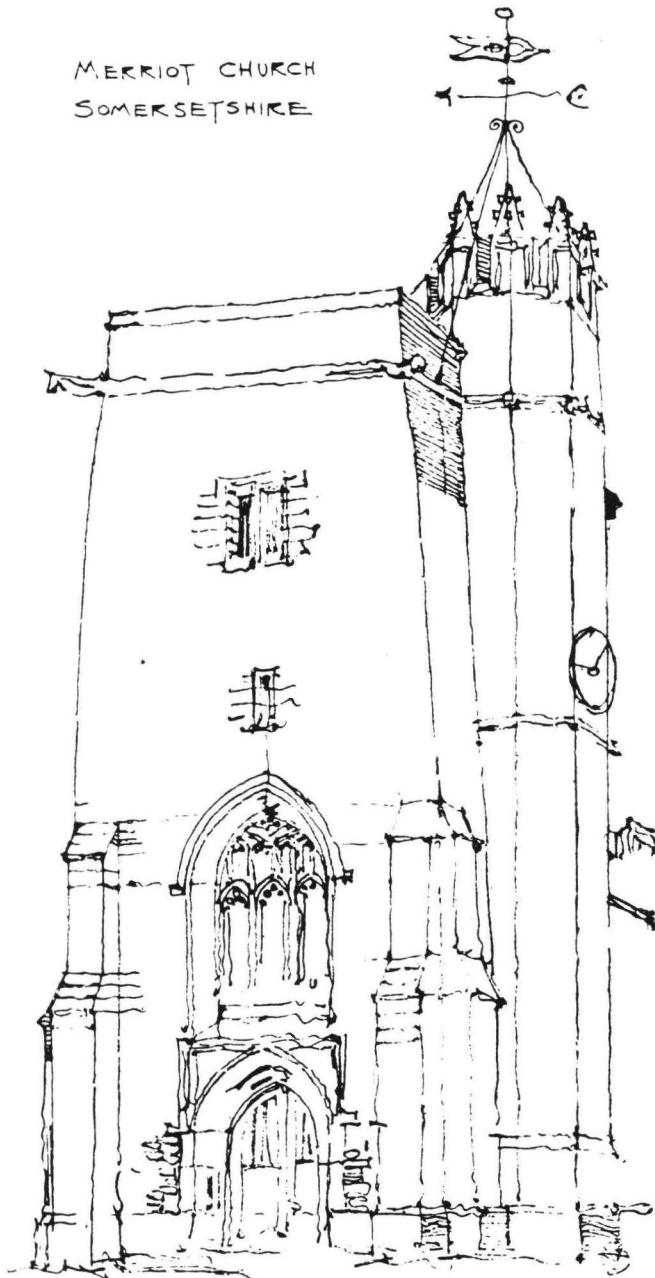


2. EAST WINDOW



3. VAULTED ROOF

MERRIOT CHURCH
SOMERSETSHIRE



Merriot Church, Somerset, 1895
University of Glasgow, Mackintosh Collection

CHAPTER TWO

WHY WERE THE DRAWINGS DONE?

To assess why the production of major drawings of the Queen's Cross Church should have been undertaken, we must firstly examine a little background information.

The importance of Charles Rennie Mackintosh as the premier Glasgow architect cannot be underestimated. We have previously indicated however, that despite this relatively few examples of his work remain intact, Queen's Cross Church being one of them.

The task of compiling accurate measured drawings was suggested for two main reasons. Firstly there were no known drawings of the building in existence other than the famous Mackintosh perspective, and secondly since Glasgow is to be the European City of Culture in 1990, it was felt that a systematic survey of his work should be undertaken as part of the celebrations.

On contacting the Secretary of the Charles Rennie Mackintosh Society, Mrs. Pat Douglas, we discovered, as had been suspected, that there was very little recorded information available

on the building. Obviously drawings had been done at the time of building, but these were either destroyed or lost down through the years.

Mrs. Douglas indicated that the Society would be extremely keen to have proper measured drawings of the building done. We were also advised that the programme of renovation works carried out on the church a couple of years previously had yielded floor plans, but that these were not the original drawings (1). We were shown copies of the contract drawings for the renovation works carried out by Keppie Henderson and Partners, Architects, and to our surprise found that the renewal work, including the stonewashing and stone repairs to the facade, had been carried out based on enlarged photographs printed onto standard architectural office print paper, grided off and marked up by hand. The project architect and the contractor must have had extreme difficulty in assessing what was required, since the prints are by no means very clear.

Mr. Chris Fletcher of Keppie Henderson's was contacted to enquire if indeed this information was the sole basis on which the remedial works had been carried out. We half suspected that

the architects were keeping secret copies of the drawings to themselves! Mr. Fletcher confirmed, however, that there were no further drawings to his knowledge, and that as far as he knew the only illustration of the exterior still in existence was the famous Mackintosh perspective. Subsequent enquiries have revealed that many originals of projects, including some done by Mackintosh, were destroyed in a fire in the architects' offices during the 1950's. We were also informed by one former employee that as an apprentice he was told by one of the partners to throw out many old drawings, including Mackintosh efforts, which were taking up too much space in the store room. Here may be the solution to the disappearance of the original drawings of the building.

Not to be discouraged, we maintained our search by checking in Glasgow District Council Archives, but the only illustrations relating to Mackintosh were several drawings of various tea rooms, done in the 1950's.

Next we carried out a search in Strathclyde Regional Archives situated in the Mitchell Library. Despite many hours searching through the records we were unable to find anything

of Queen's Cross Church, although we did manage to find information relating to the workshop premises next door. The search was not totally in vain, since we discovered that the Mitchell Library still had in their possession the originals of the Art School, which surprisingly enough have not been stolen or "lost" down through the years.

Further searches were made in the records and information held by the Hunterian Art Gallery, University of Glasgow, but here again we were unsuccessful.

We felt that since the only relevant information on this building in existence was of a sketchy nature, we would therefore be justified in carrying out a full measured survey of the building and to try to provide information of a quality in keeping with the importance of this building and its architect.

NOTESCHAPTER TWO

WHY WERE THE DRAWINGS DONE?

1. Howarth, Charles Rennie Mackintosh

and the Modern Movement (1983) p.176

CHAPTER THREE

OBSERVATIONS/CRITIQUE

The next task was therefore to carry out extensive site visits at different times of the day to enable us to become familiar with the project at hand, as a preparation for carrying out surveys and execution of the drawings themselves.

We visited the building on many occasions and at varying times of the day, each visit yielding up some new facet of which we had previously been unaware.

The initial impression of the church is of a very traditional building, designed in the Scottish Baronial style, with easily discernible Gothic elements.

It is interesting to compare Queen's Cross with a similar contemporary project, St. Andrew's East Church (1904, by James Miller) and Church Hall (1899, by James Salmon II and J. Gaff Gillespie). The St. Andrew's hall in particular is obviously Art Nouveau/Gothic in style and yet owes much more to the European tradition as portrayed by Voysey and Guimard, whereas Mackintosh's roots are inherently Scottish.

The corner side of the building at the junction of two busy main thoroughfares, amidst four storey tenement housing and adjacent to industrial warehousing, is extremely awkward and posed the architect

tremendous problems of scale and planning. By placing the main tower on the corner, Mackintosh was attempting to achieve harmony with the surrounding structures, whilst giving the church a characteristic dignity of its own. If we consider Mackintosh's famous perspective drawing of the building, we notice that he conceptualised the building in almost romantic terms. The adjacent buildings shown in the drawing bear no resemblance to those in actuality, and are almost fanciful in appearance.

We can also note the almost manicured, stylised form of the trees shown in the perspective. It has been stated (1) that in the building of the Hill House in Helensburgh, Mackintosh had had the trees trimmed and formed to match those illustrated in his drawing. Here at Queen's Cross we can see a similar parallel to this albeit in an earlier project.

The facades of red coloured random course sandstone, with grey slate roofs, give a feeling of permanence, tradition and solidity which was required in the design of the church. Charles Rennie Mackintosh has, however, gone further than merely producing a neo-traditional design by introducing elements of his own.

The main facade facing south appears almost to have been conceived in two parts - with the main tower and twin gables at the west end appearing to be at odds with the flying buttresses, secondary entrance doorway and recessed portico at the east. Here perhaps could possibly be the influence of Honeyman exercising his partner's right over the subordinate Mackintosh, and causing a contradiction in design approach. The elevation lacks a certain unity of form present in other examples of Mackintosh's work, although there are several original elements worthy of attention.

The curious window above the secondary entrance at the east end of the facade, with its almost eye-like tracery is extremely interesting. This window serves the top landing of the staircase to the east balcony. The capping of the central carved feature is not only decorative, but serves the function of deflecting any rainwater draining from the roof away from the window.

A similar eye-like form is again present in the mouldings over the large windows on the two gable ends, where the softening curves of the stonework appear to take on the form of eyelids.

Here on this elevation appears also the ever present floral tracery motifs. It is apparent therefore, that the architect was trying to introduce natural, organic almost human forms to try to achieve his desire of

developing a new modern style from traditional building forms.

It is interesting to note that having carried out the surveys on the building, and set up this elevation on the drawing board, this facade was conceived according to classical principles of proportion in that it appears to conform to the rules of the golden section.

The heart shaped floral motifs are again present in the tracery of the large chancel window with its formal pattern of deep blue stained glass.

Early photographs show that the lower portion of this window also contained stained glass panels, but these must have been replaced at some point as these panels are now of plain glass.

This elevation is dominated by the octagonal main tower with its pronounced batter. The original tower was topped with a wrought iron weather-vane, which has now been replaced by a simple cross not in keeping with the style of the rest of the building.

The architect justified or at least excused the use of this tower by judicial placing of the staircase access to the gallery on the south side. The octagon is also the basis on which the staircase of the adjacent chapter house (now used as office accommodation for the C.R.M. Society). It is interesting to note also the almost domestic scale of this part of the building yet it sits easily with the dominating form of the rest of this elevation.

Because of the proximity of the original warehouse building adjacent to the church the north elevation was not originally designed to be viewed as a full elevation. Mackintosh cleverly manipulated the plan to allow the maximum possible amount of light to enter the church on the north side, and yet to take into account problems of access/linkage to the church hall from the main church and from the street. Similarly the east elevation, because of the presence of the adjacent four storey tenement housing block cannot fully be seen clearly from any position. Here though the architect stamped his own personal inventiveness on the building because although the presence of the decorative east window is traditional in its location and size, it is novel in the simplicity of the

colours of the stained glass used, and in the writhing organic forms for the window's tracery.

It is also interesting to note that the small curved openings appearing above the lower windows are not visible in the building's interior.

The plan of the church is a simple rectangle. The nave runs parallel to Garscube Road with the single aisle on the street side acting as a link between the entrance vestibules from which narrow winding stairs rise to two balconies on the south and east sides. At the west end is the chancel with the vestry (and session house above) tucked in behind the gable to where the adjacent warehouse on Springbank Street formerly stood.

The church hall extends to the north east, and is connected to the church internally, but may also be approached down a narrow alley from Garscube Road running between the building and the adjacent tenement property. The church hall is typically Mackintosh in the interior only. The exterior is mainly bland and devoid of any real architectural interest, since it was not designed to be seen because of the proximity of other surrounding buildings. The

church hall does have an interesting factor of its own, in that when viewed externally, a chimney is clearly visible on the north gable, yet there is no sign of a fireplace internally, this being in area occupied by the stage. Possibly this fireplace was removed when the stage itself was constructed or was bricked-up at some earlier time.

The interior of the main church itself appears quiet and restful. Here Mackintosh reveals his liking for exposing the main structural elements. Both balconies originally had their cantilevered construction exposed, but during the Second World War the minister and church session who were anxious to obtain additional accommodation for Sunday school classes, ordered that five rows of pews should be removed and a light screen erected to partition off an area some 40 feet by 15 feet at the rear of the church. This screen was designed by Professor Howarth, and although the main columns supporting the gallery are not now visible, the main structure is not affected and the screen can easily be removed if necessary (2).

Close examination of the plan and west elevation indicates that the apex of the window on this facade, curiously enough, does not line up with the centre of the four vertical panel elements at the rear of the chancel, which are centred on the middle of the nave. The window is actually centred on the rear wall.

Originally, there was a carved timber rood beam shaped in a bird-like form over the chancel area. The Charles Rennie Mackintosh Society, under their programme of restoration, have undertaken to try to restore this element. There has been much discussion as to the exact details of this element as there is no complete photograph or drawing showing its full design.

The first phase of the remedial work was carried out during 1979-80 and involved redecoration of the hall and major structural repairs. Phase 2 commenced in 1984, when the Society embarked upon a major programme of the eradication of dry rot, stonework repairs, and essential repairs to the roof.

It is now planned to restore the woodwork to its original darker stain, and to paint the

plasterwork. When the church was built, there was originally decorative stencil work on the walls. It is hoped that these may also be restored at some point in the future.

The architects involved in the restoration work, Keppie Henderson's, have indicated that in general the building is in reasonable condition although there are some signs of movement on the main pillars at the aisle, although this is normal in buildings of this age and in the Glasgow area. Their main problem was the extensive rot work, which made it necessary for many pieces of carved timber to be removed. These pieces were photographed and recorded, and copies made and restored.

We also noted the presence of what seemed to be ventilation grilles in the timbers of the vaulted roof. Chris Fletcher of Keppie's advised us that he suspected that there had originally been some sort of ventilation system in the church, and these were the evidence supporting this. He also stated that it was suspected that the building had had some kind of gas lighting system at the outset with large gasoliers adjacent to the chancel area but could not

confirm this. Mr. Fletcher pointed out that perhaps the carved bird-like forms, with rings in their mouths, as apparent on the panels of the pulpit etc., could interestingly enough, possibly be based on the Glasgow City Coat of Arms. Certainly there are also tree-like forms in the carvings, but this may be mere conjecture on his part!

Finally, our surveys highlighted a problem with the building which had previously not been apparent. On setting up the plans, sections and elevations on the drawing board, we became aware of a slight discrepancy in the building. It would appear that although the two opposite sets of walls are parallel to each other, each wall is not at 90° to the adjacent wall. Initially we thought that we had made a mistake in our surveys, but on repeatedly checking our sizes, we still arrived at the same conclusion. At this point we discussed the situation with Professor McMillan, of the Mackintosh School of Architecture, who was to say the least sceptical, but nonetheless agreed to accompany us to the site to investigate the problem.

After extensive investigations, which included climbing the main tower and viewing the roof from the highest point of the building, the Professor agreed that there was at least some evidence to support our allegations. He advised that we take diagonals inside the building to try and establish if our theory was correct. This was done, and from our calculations it would appear that there is a 1° inaccuracy in the way the structure has been built. Whether this is due to an on site decision by the architect or merely an inaccuracy in Victorian building methods is open to discussion. One must remember that the amount of error is fairly unsubstantial when considering the technology available at that time.

NOTESCHAPTER THREE

OBSERVATIONS AND CRITIQUE

1. Cooper, Mackintosh Architecture, Complete Buildings and Selected Projects
(1980) p.40
2. Howarth, Charles Rennie Mackintosh and the Modern Movement (1983) p.178



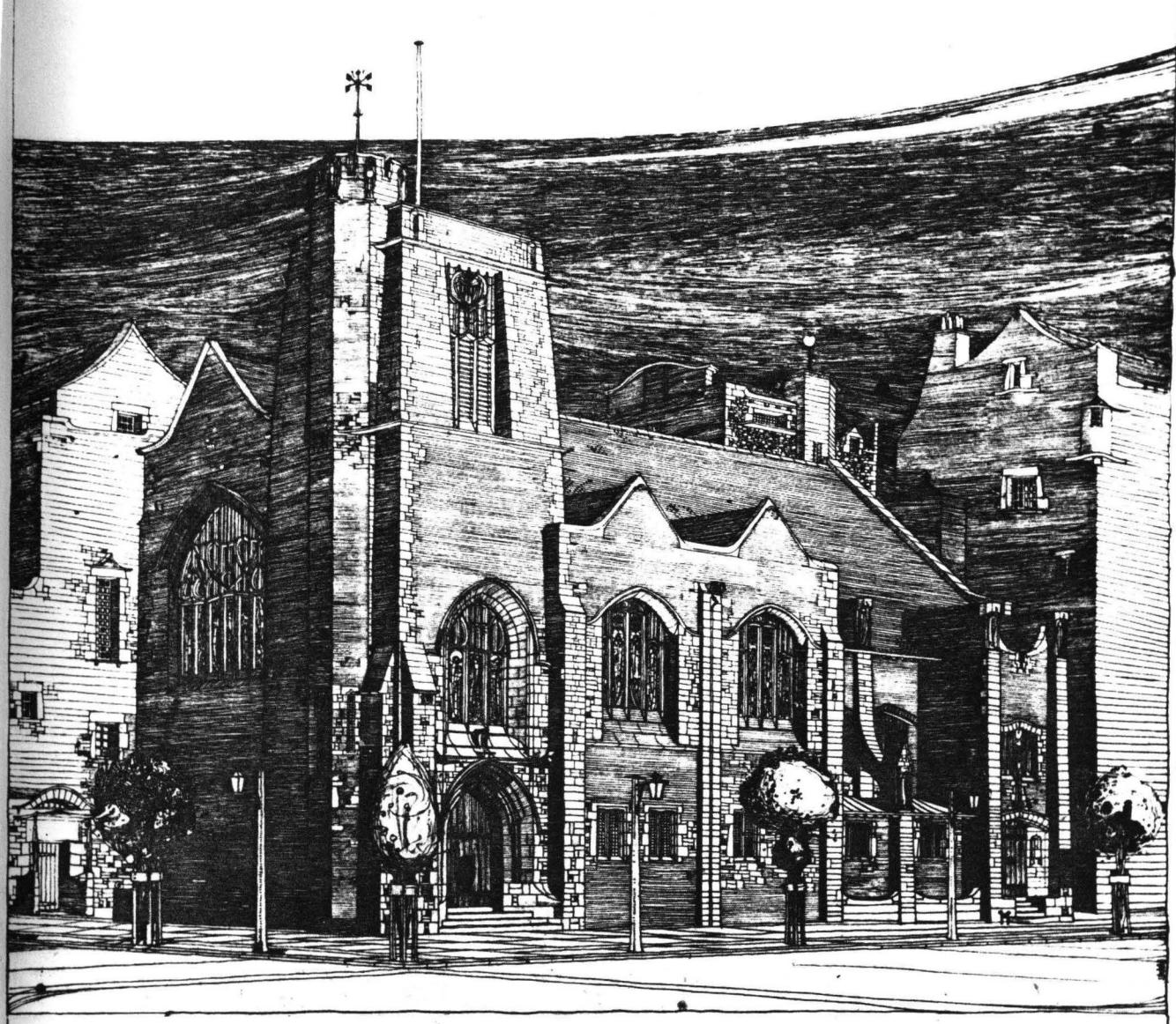
5. VIEW FROM SOUTH WEST



6. ST. ANDREW'S EAST CHURCH



7. ST. ANDREW'S EAST CHURCH



□ ST MATTHEWS CHURCH: GLASGOW □

: NOW QUEENS CROSS CHURCH:

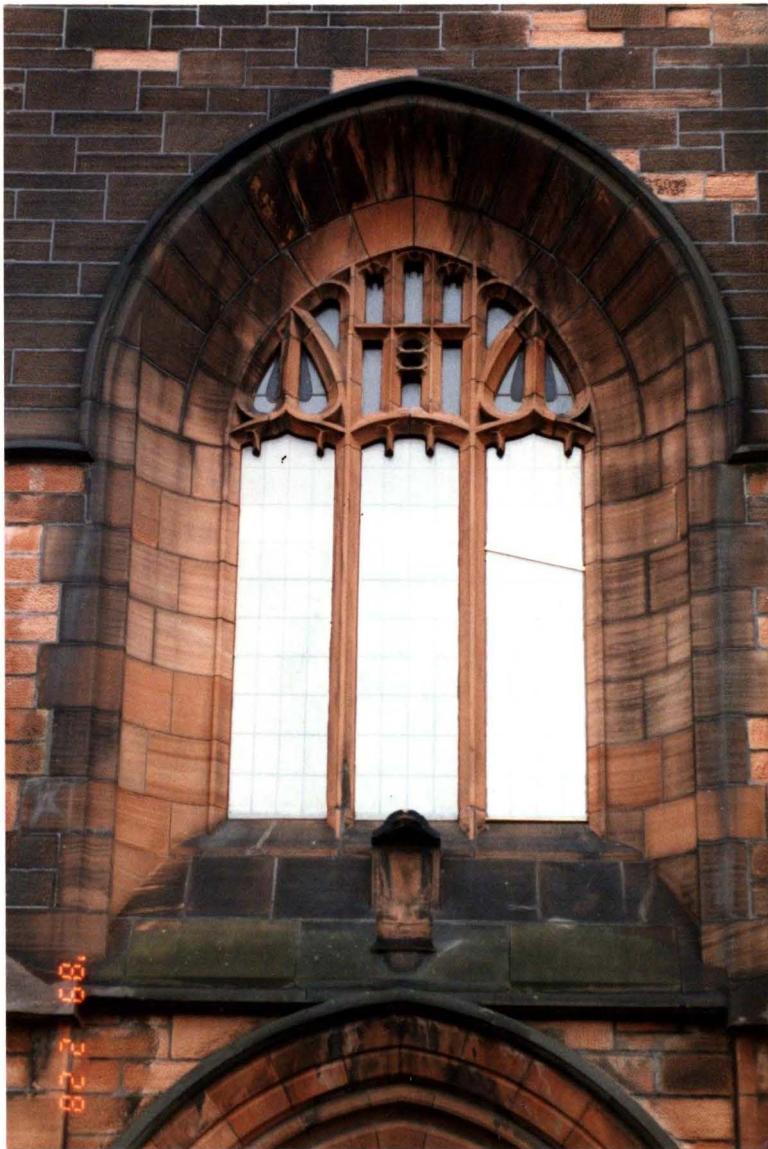
JOHN HONEYMAN AND KETTIE
ARCHITECTS
KODATH STREET : GLASGOW



9. UPPER GABLE WINDOWS



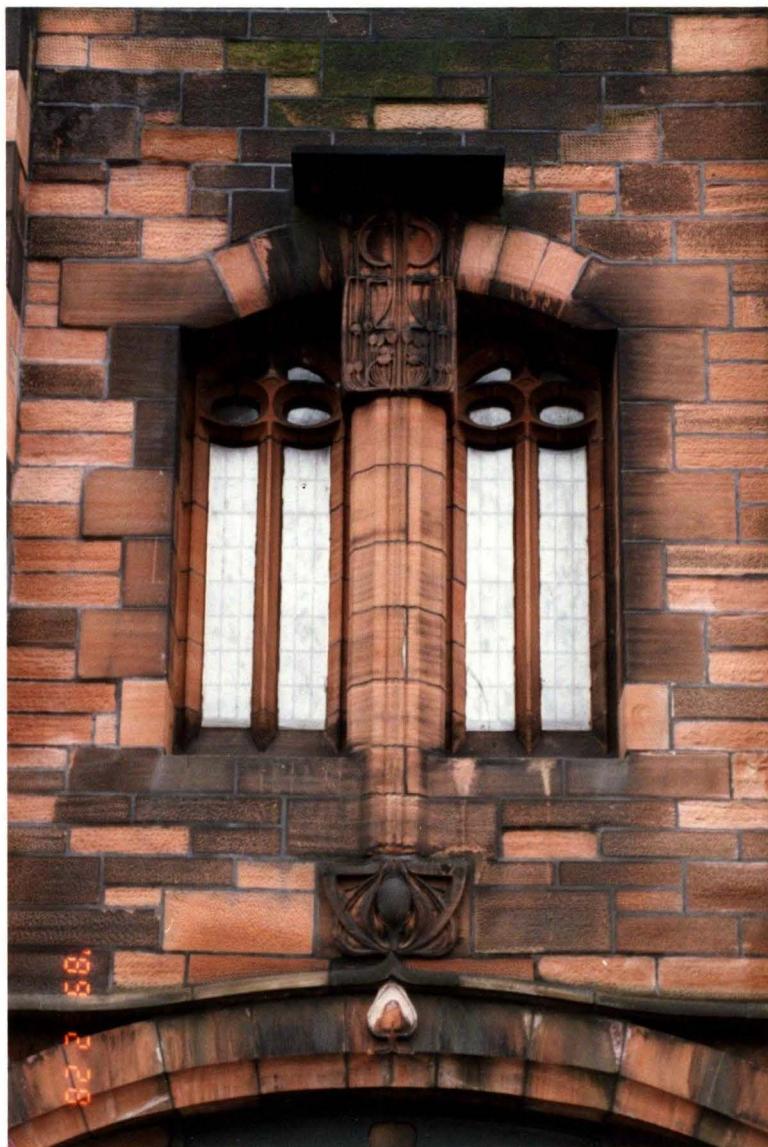
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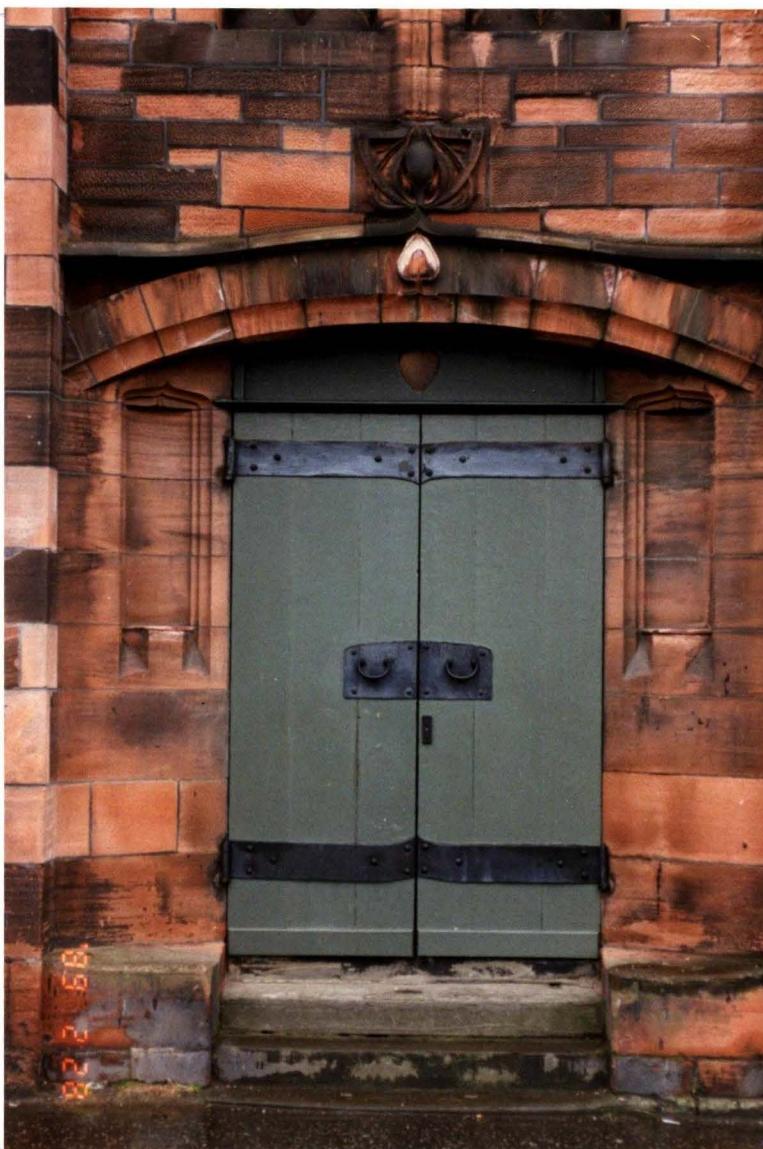
11. WINDOW OVER WEST DOOR



12. WEST DOOR



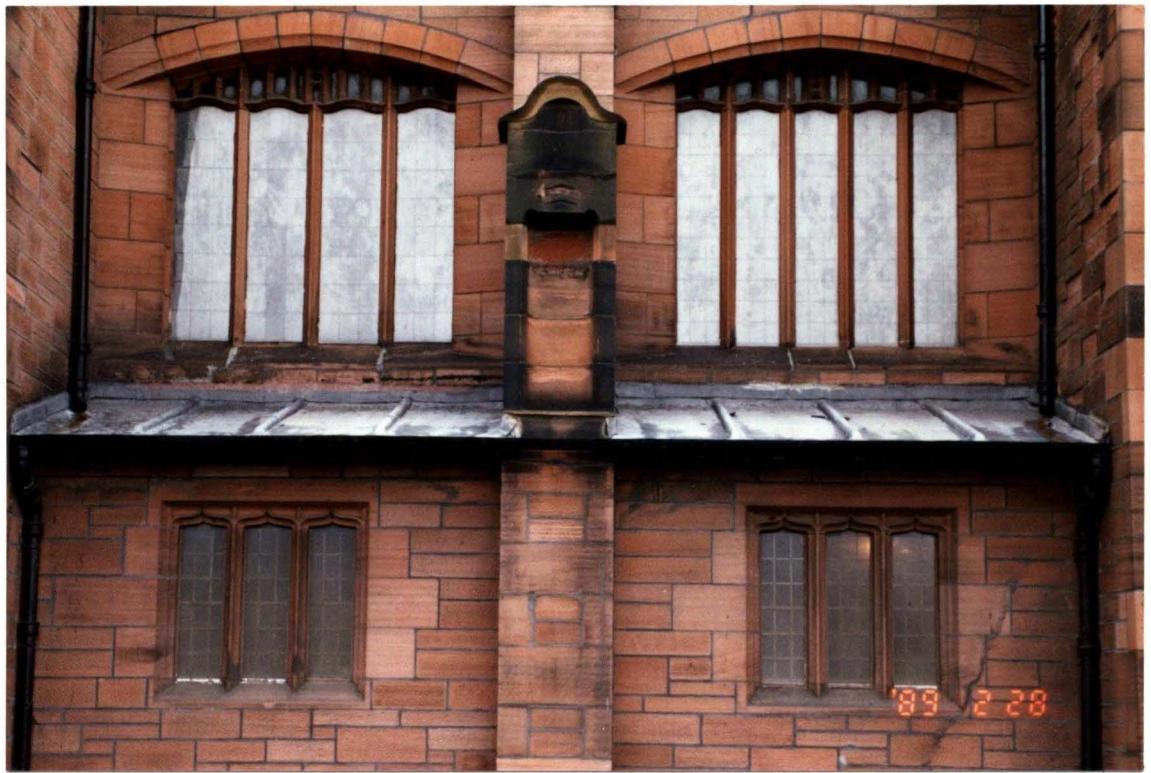
13. SCULPTURE OVER EAST DOOR



14. EAST DOOR



15. SOUTH FAÇADE



16. WINDOWS ON SOUTH FAÇADE



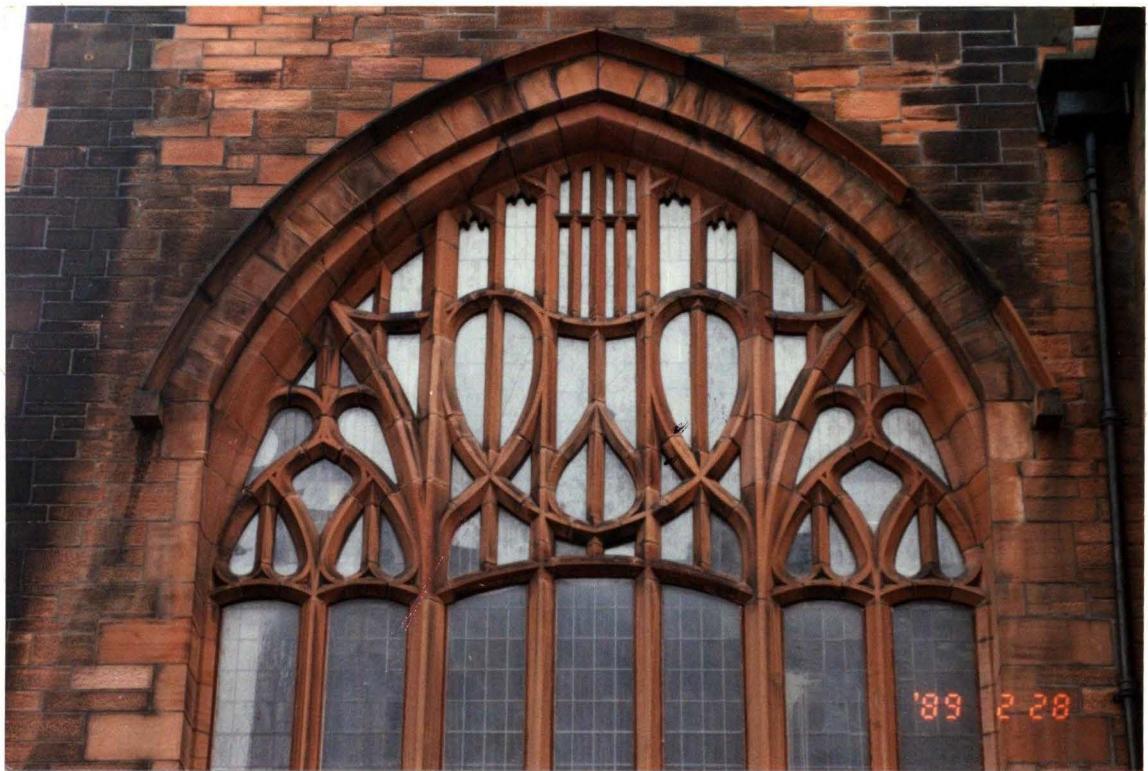
18. WEST FACADE AND TOWER



19. CHAPTER HOUSE



20. DOORWAY - WEST FACADE



21. DETAIL OF WEST WINDOW



22. DETAIL OF WINDOWS - NORTH ELEVATION



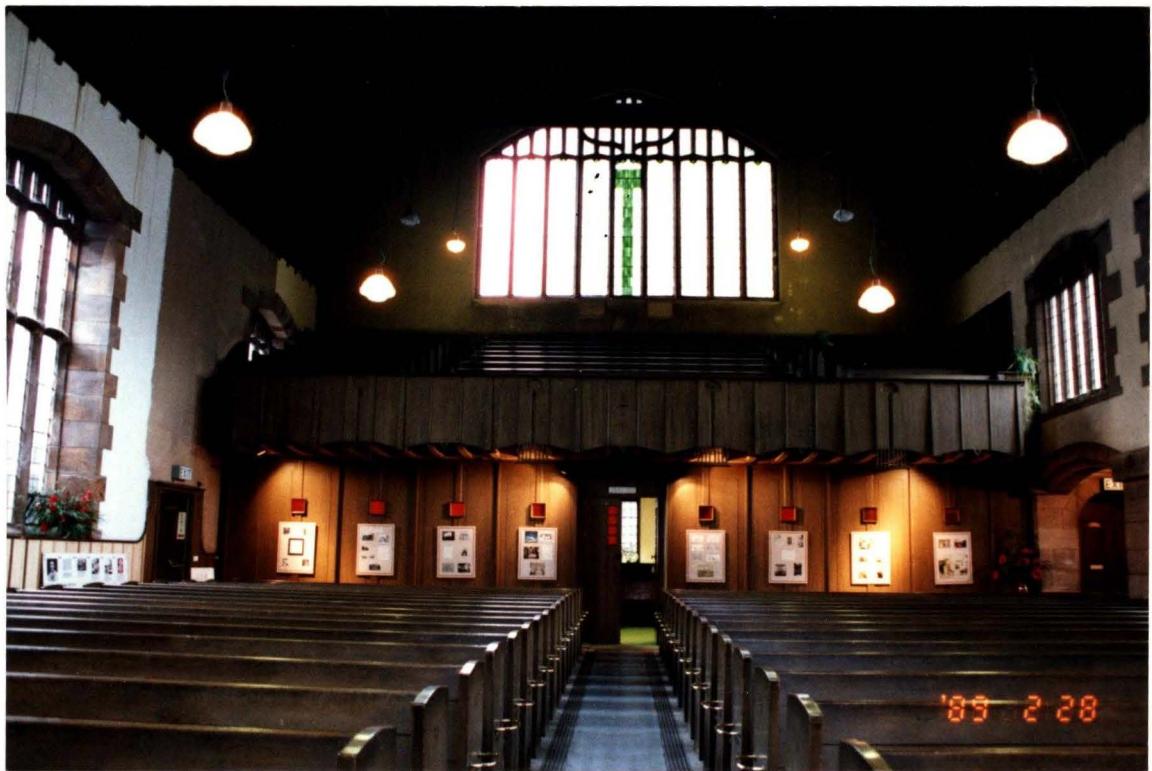
23. NORTH ELEVATION



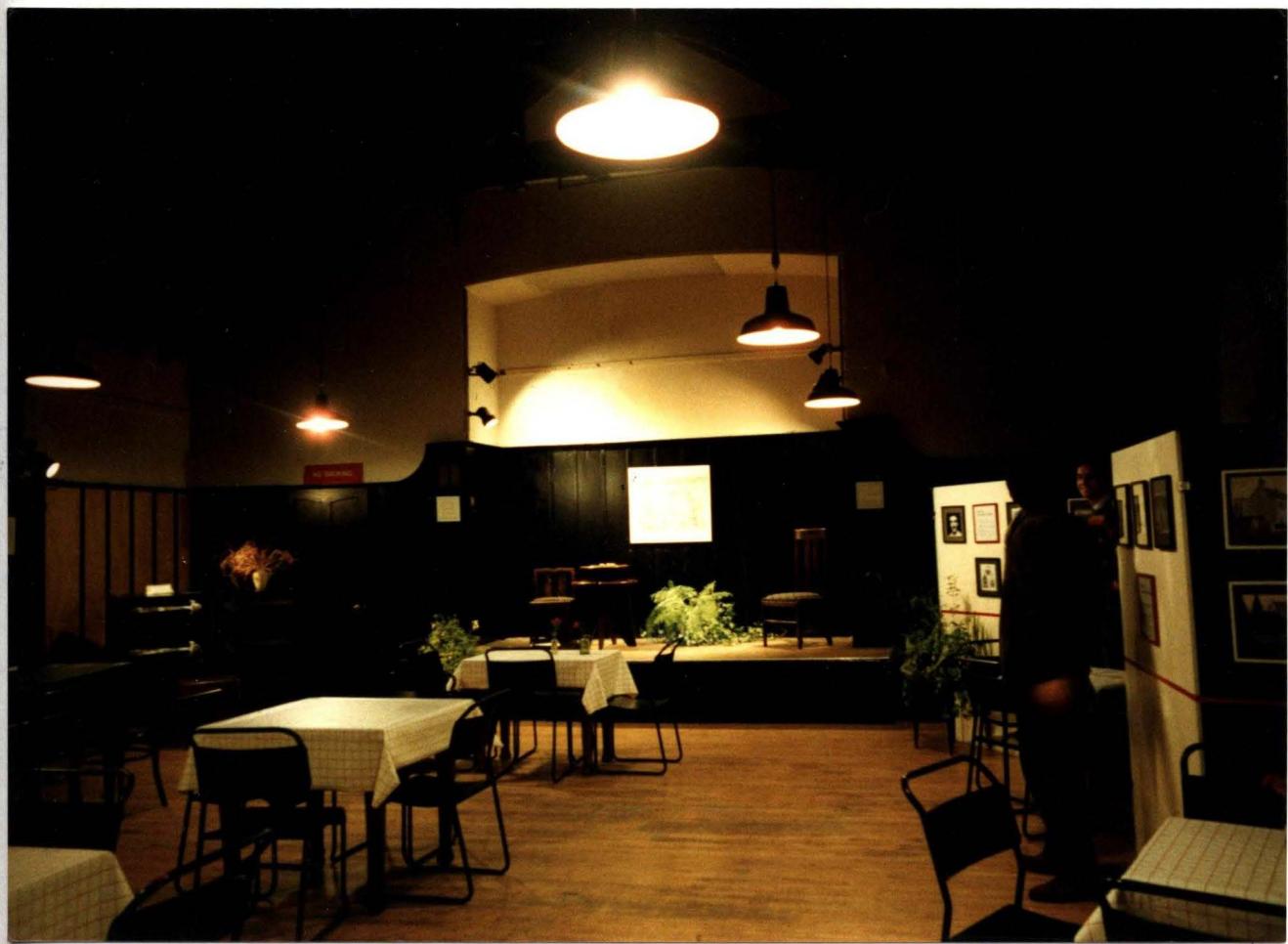
24. EAST FAÇADE



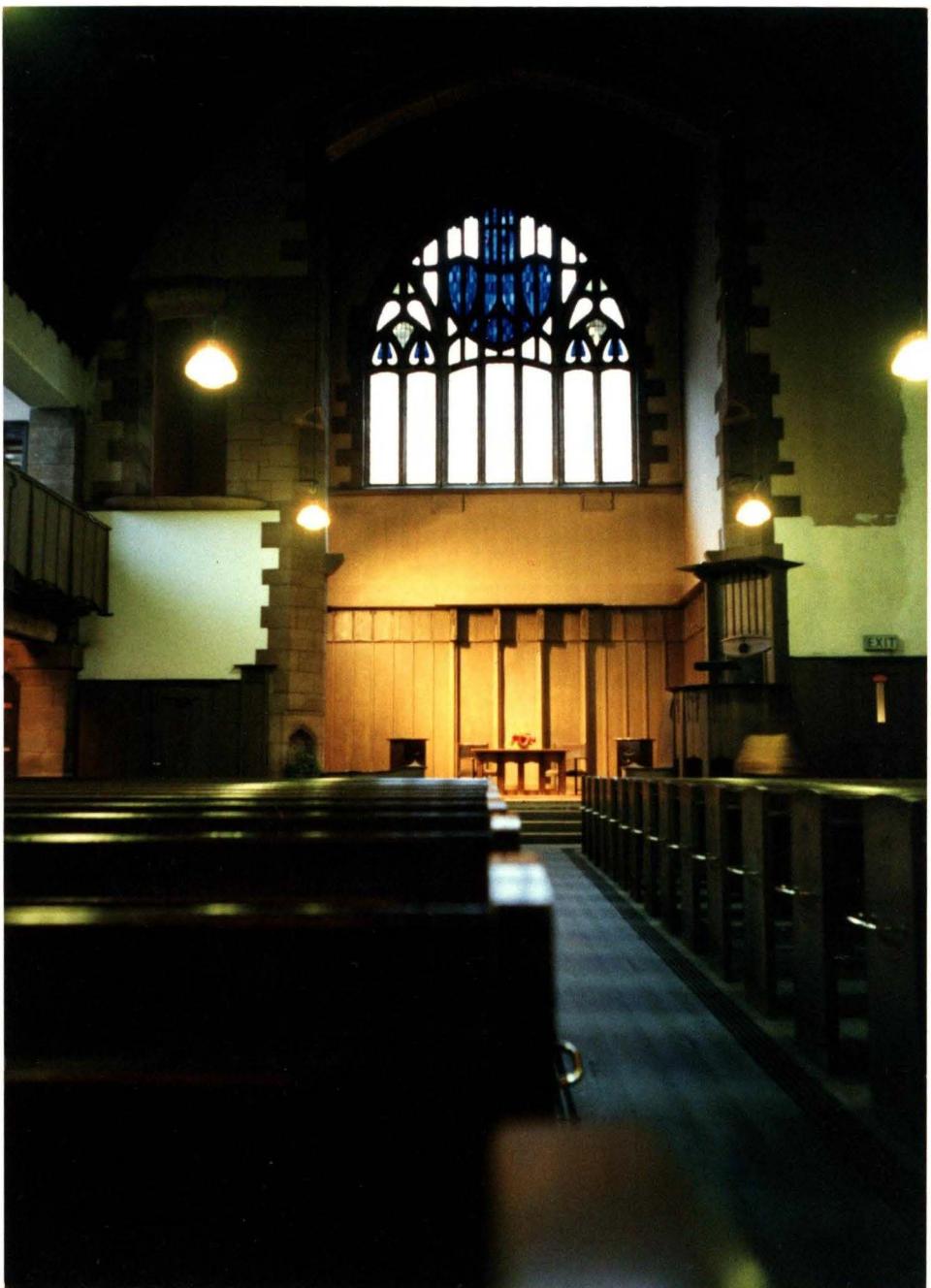
25. EAST FAÇADE FROM SOUTH EAST



26. INTERIOR OF CHURCH LOOKING EAST



27. CHURCH HALL



30. CHANCEL



31. BALUSTRADE



32. REAR OF CHANCEL



33. PULPIT



34. CAPITAL

CHAPTER FOUR

CONCLUSION

In conclusion, we all felt that it was an extremely worthwhile exercise to undertake a full measured drawing survey of this building. We felt that it was extremely important, that a building of this stature be accurately documented since there are relatively few virtually intact examples of the work of Charles Rennie Mackintosh.

Whilst agreeing with Professor Howarth that the Queen's Cross Church is not one of Mackintosh's best buildings (1), i.e. it lacks an overall unity apparent in some of his other projects, nonetheless it served as a prototype for his later works and allowed him to develop his ideas.

We felt, though, that perhaps the most useful element that justified the exercise was the discovery late on, of the slight inaccuracy in the way the church is built. We have undertaken to make slight adjustments to our drawings in the light of this knowledge.

As students of Architecture, we hope that the drawings of Mackintosh's architectural work in Glasgow and its environs will be saved and cherished for many years to come.

NOTESCHAPTER FOUR

CONCLUSION

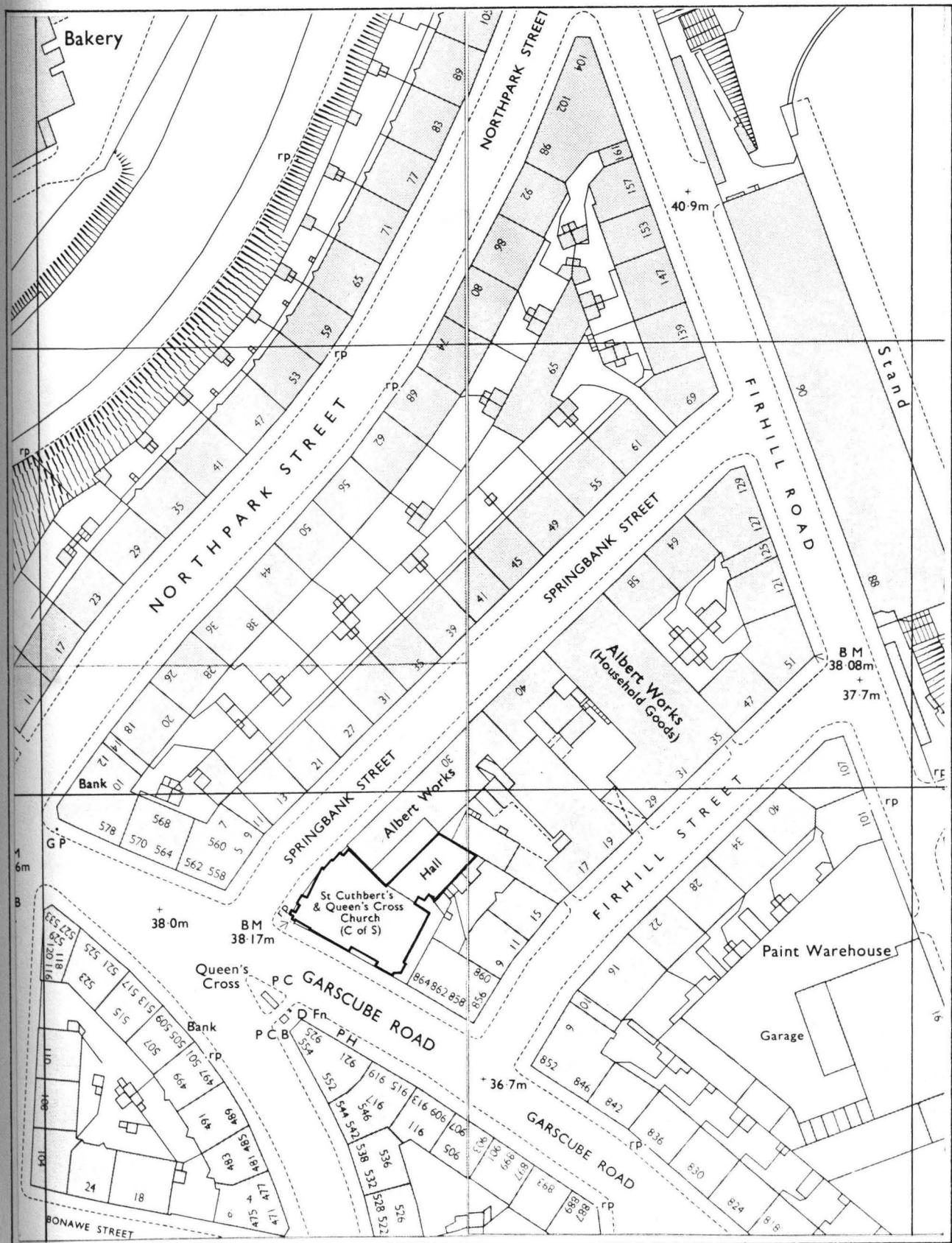
1. Howarth, Charles Rennie Mackintosh and the Modern Movement (1983) p.179

THE DRAWINGS

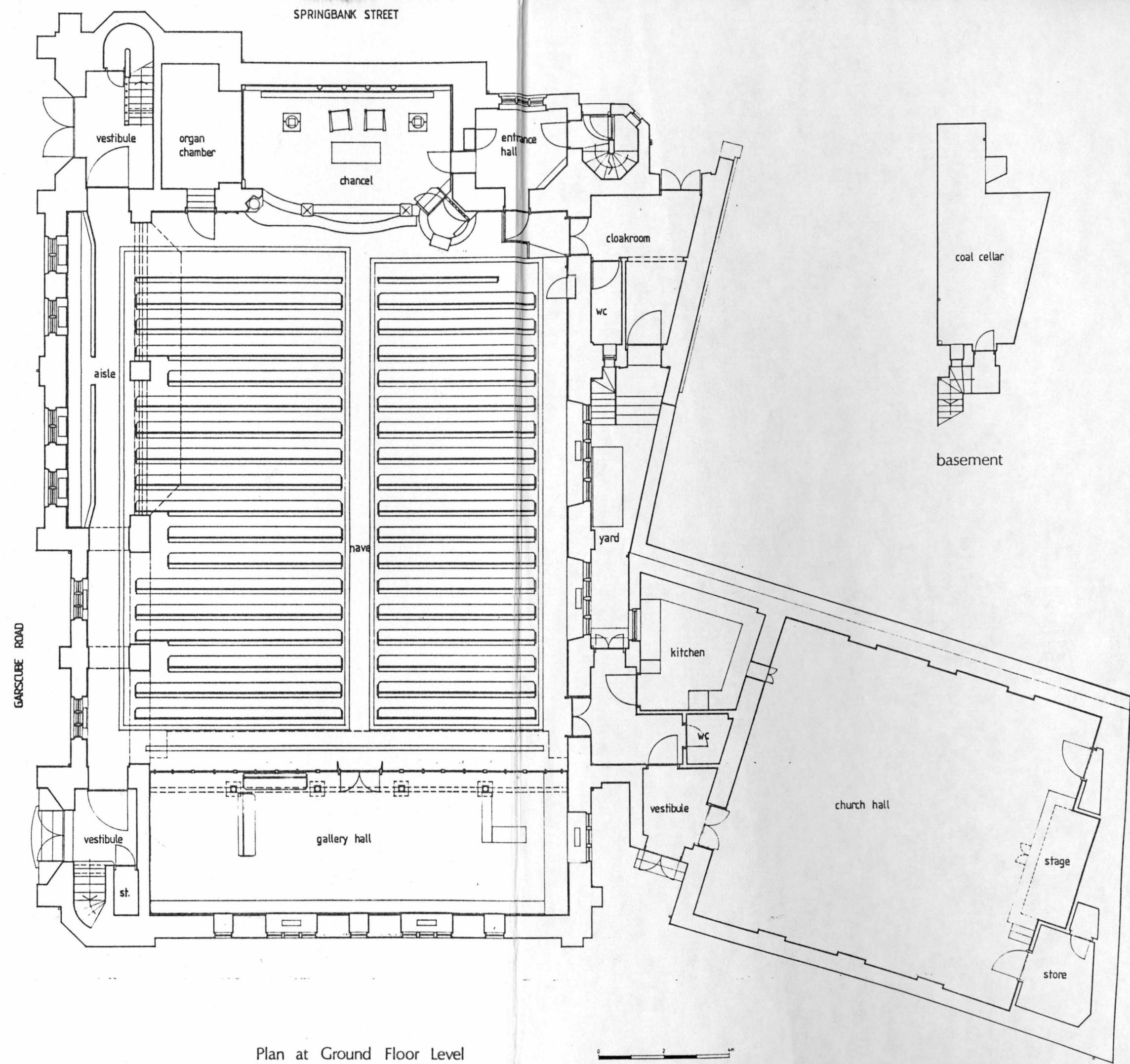
PLANS - R. MORETTI

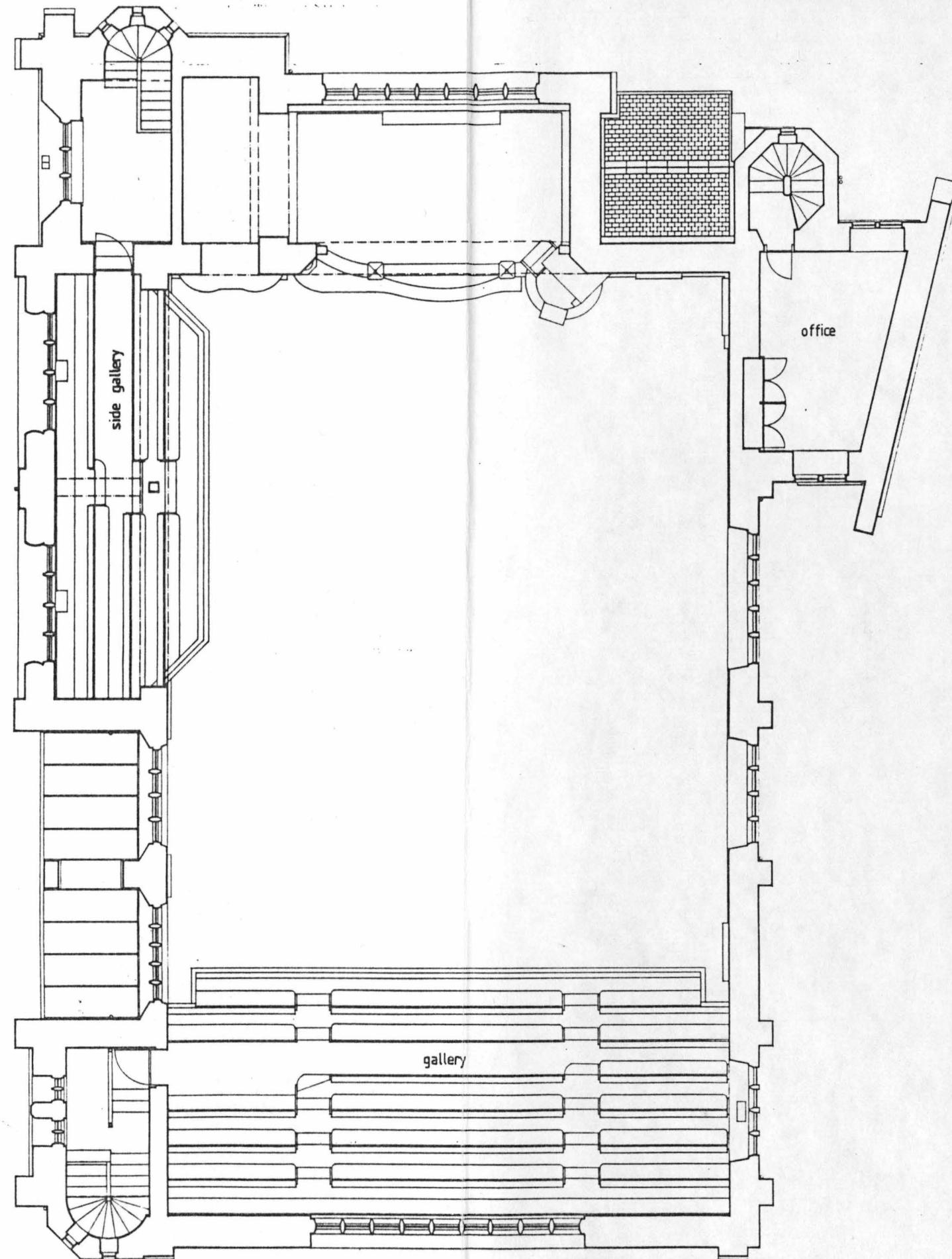
SECTIONS - D. CRAWFORD

ELEVATIONS - N. SOMERVILLE



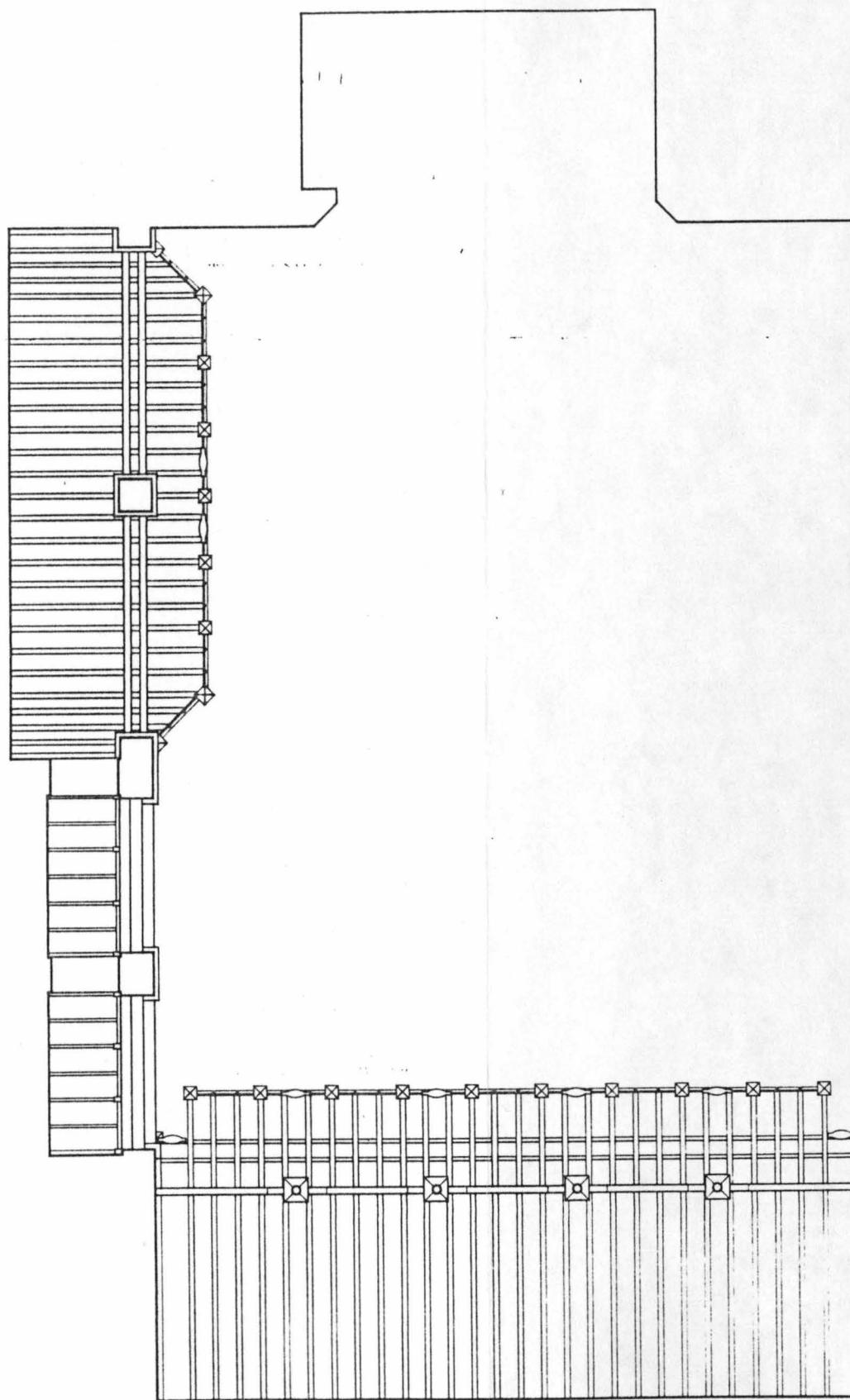
Location Plan



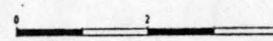


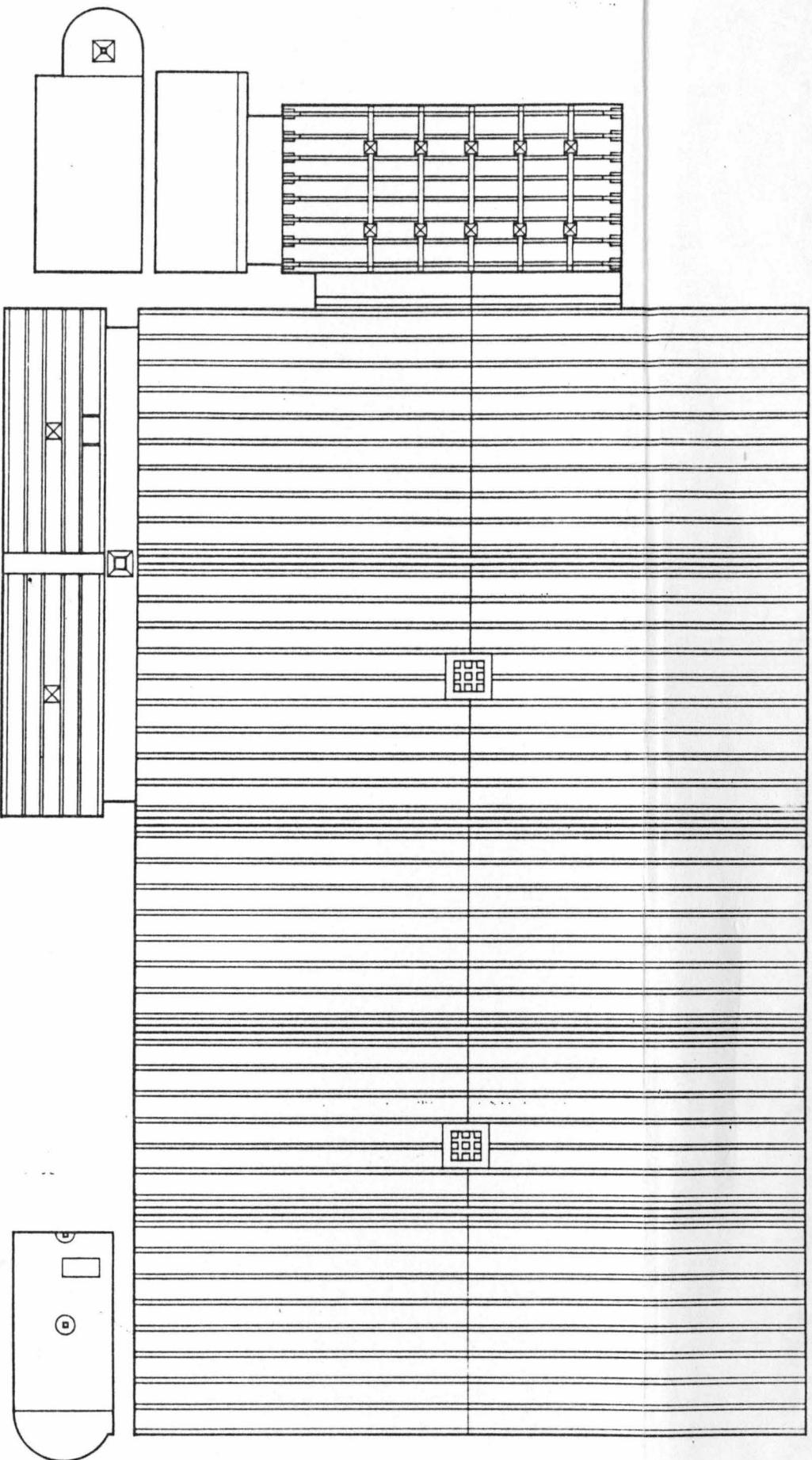
Plan at First Floor Level



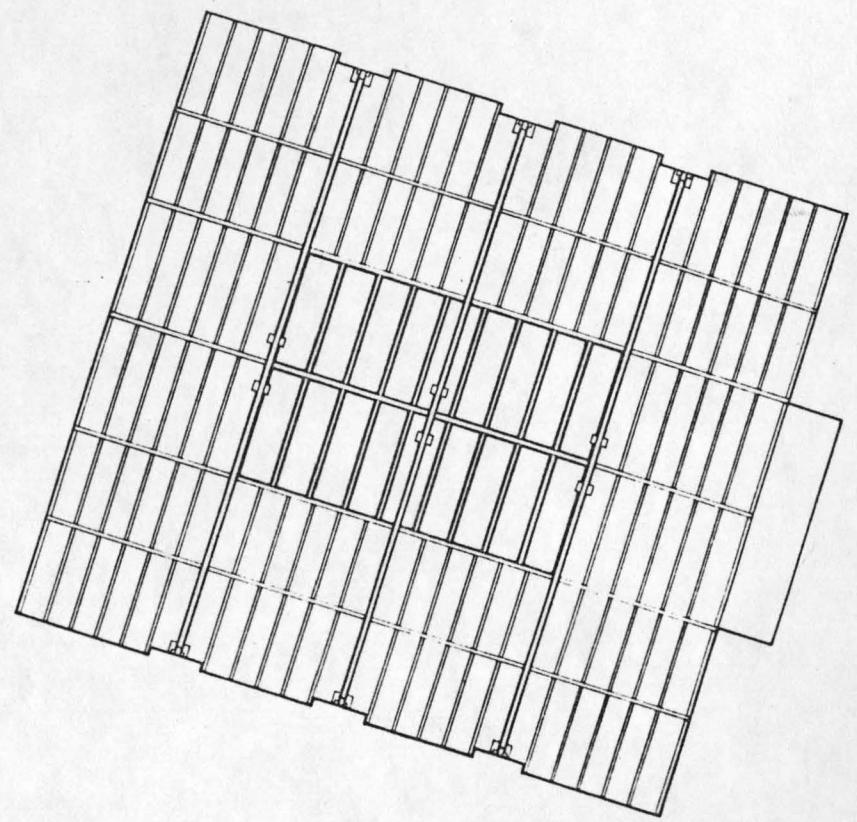


Plan to Underside of Galleries





Ceiling Plan





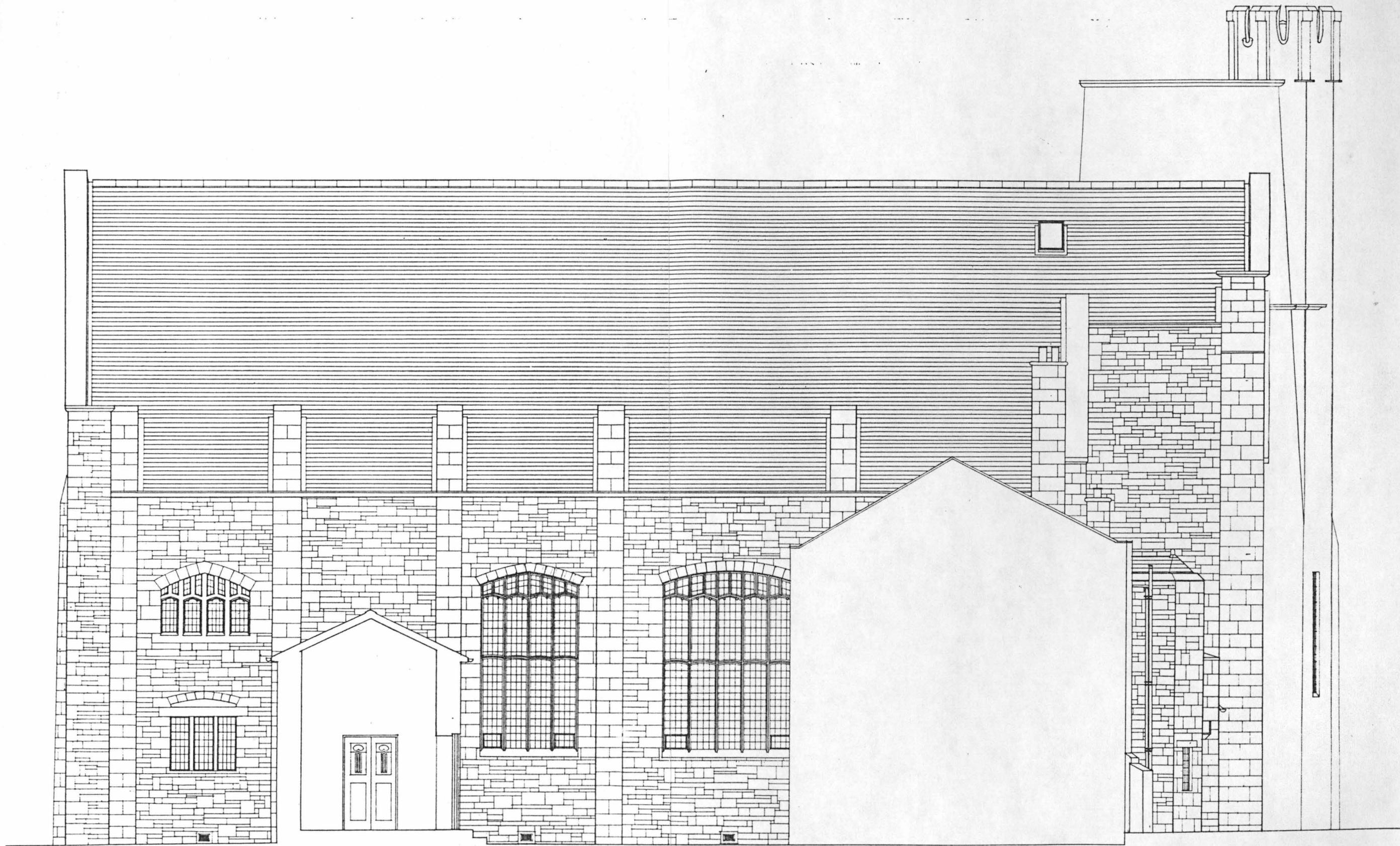
Elevation to South

0 2 4m



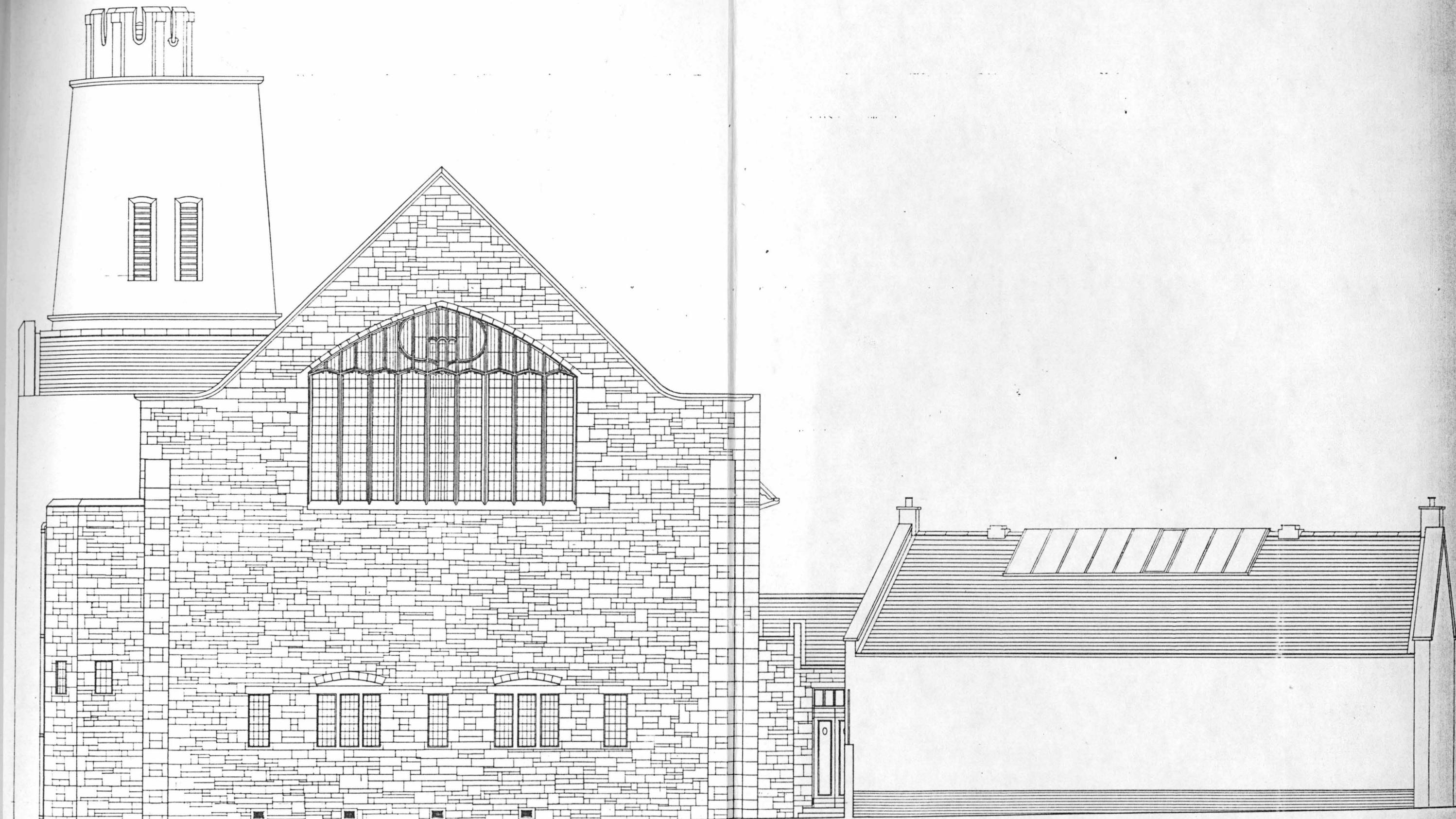
Elevation to West

0 2 4



Elevation to North

0 2 4m



Elevation to East

0 2 4m

GENERAL BIBLIOGRAPHY

BOOKS

- CHITHAM, R. Measured Drawing for Architects,
London, Architectural Press (1980)
- COOPER, J. Mackintosh Architecture, Complete Buildings and Selected Projects,
2nd Edition, London, Academy Editions (1980)
- DOAK, A.M. and YOUNG, ANDREW McLAREN Glasgow at a Glance, 2nd Edition,
London, Hale (1977)
- GOMME, A and WALKER, D. Architecture of Glasgow,
London, Lund Humphries (1968)
- HITCHCOCK, R.H. Architecture Nineteenth and Twentieth Centuries, London,
George Allan & Unwin (1983)
- HOWARTH, T. Charles Rennie Mackintosh and the Modern Movement, 2nd Edition
London, Collins (1983)

MacLEOD, R. ~~PERSON~~ Charles Rennie Mackintosh

Architect and Artist, 2nd Edition

London, Collins (1983)

McLAREN YOUNG, A. Architectural Jottings by

Charles Rennie Mackintosh,

Glasgow, Glasgow Institute of

Architects (1968)

MILLAR, A. and OPFER, J.

Charles Rennie Mackintosh

Scotland Street School -

A New Survey, Glasgow,

Glasgow Print Studio Gallery

(un-dated)

SINCLAIR, FIONA

Scotstyle : 150 Years of

Scottish Architecture,

Edinburgh, The Royal

Incorporation of Architects

in Scotland and the Scottish

Academic Press (1984)

WORSDALL, FRANK

Victorian City, A Selection

of Glasgow's Architecture,

Glasgow, Drew (1982)

CATALOGUES, PERIODICALS AND NEWSPAPERS

The Architect's Journal - "Glasgow, Mayfest and
Mackintosh", London,
Architectural Press
(6 April 1988)