

Removal of the University of Glasgow to Woodlands Hill 1845–9 and Gilmorehill 1853–83

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ABSTRACT

In the early 19th century all Scottish universities were suffering from an acute lack of funds, resulting in their buildings becoming dilapidated. No less seriously, these buildings were no longer fit to meet the changing demands of an expanding educational curriculum and increasing student numbers. This paper deals with the re-location of Glasgow University to Gilmorehill and highlights the University Senate's protracted negotiations with the Treasury for additional funding. The review of the building process includes the appointment of architects and contractors, who had to cope with new technological advances, new materials, new methods of construction and new revived architectural styles.

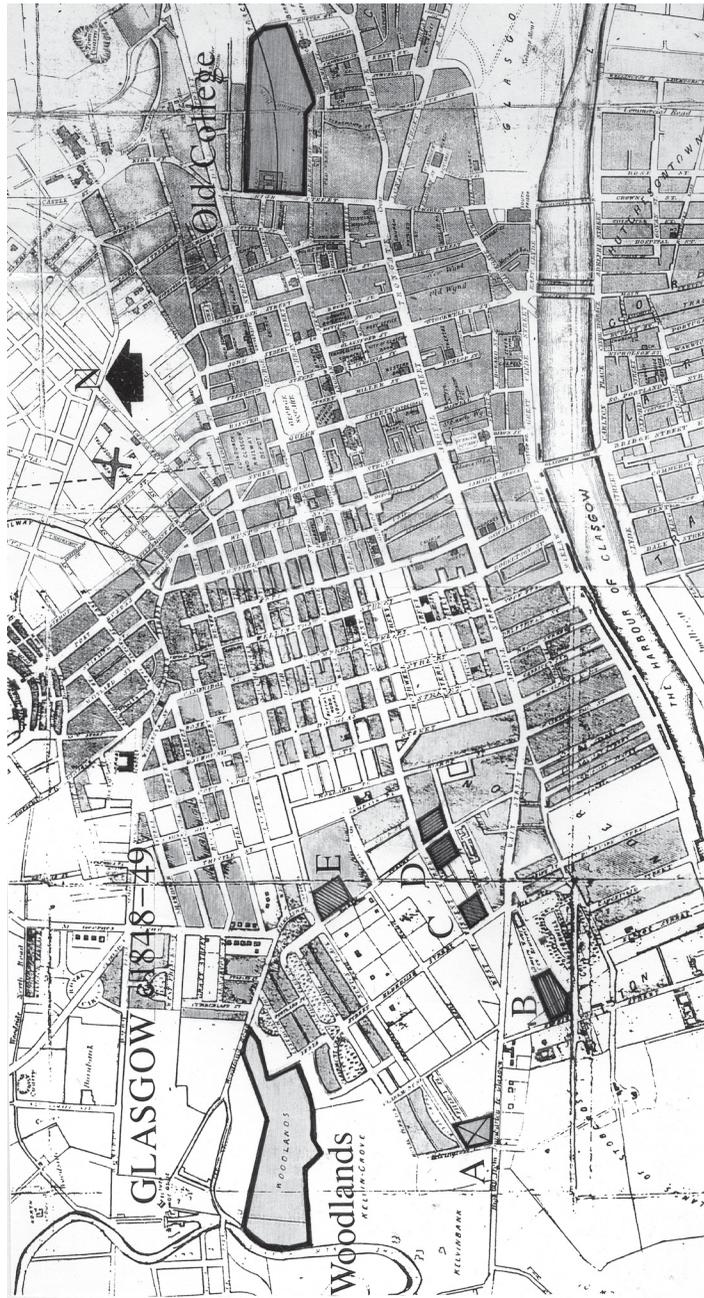
CONTEXT

In 1845, the University of Glasgow occupied a 17-acre site on the east side of the High Street. The grounds extended eastwards towards Hunter Street, and on the south were bounded by the New Vennel and Blackfriars Church (illus 1). The University buildings had been built in phases between 1630 and 1660 around two courtyards in an arrangement similar to Oxford and Cambridge colleges. The larger inner courtyard measuring 103ft (31.39m) by 83ft (25.29m) was built on open ground to the east of the original building between 1630 and 1639 by John Boyd. Boyd had built Glasgow Tolbooth in 1626 and it has been argued that he was responsible for introducing the Court School to Glasgow. [Contemporary examples of this building style are Heriot's Hospital, Edinburgh (1620–59) and Argyll's Lodging in Stirling (1632).] The north and south sides of the 83ft (25.29m) by 42ft (12.79m) outer quadrangle were added between 1654 and 1660, and in 1659 John Clark built the western wing with its

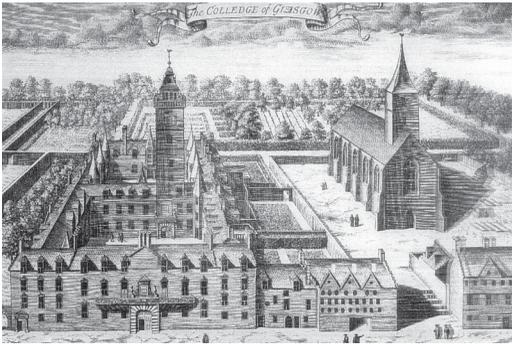
particularly fine frontage some 285ft (86.86m) in length facing the High Street (illus 2). In 1662, John Ray wrote: 'Its pretty stone buildings [are] not inferior to Wadham and All Souls College at Oxford'.¹ The conical and prismatic roofs, and polygonal oriel windows were similar to those of Heriot's, and the carved pediments and clock tower highlighted influences common in north European architecture rather than those of an Oxford College.

The bulk of the building consisted of student accommodation, professors' housing and a relatively small teaching area. By 1845, student numbers were in excess of a thousand. Forty students were housed in the 140ft (42.67m) tower that dominated the range of building separating the courtyards but, in general, accommodation provided at Glasgow contrasted sharply with the tower house lodgings provided at King's and Marischal Colleges in Aberdeen, which were distinctly inferior.² The buildings had, however, suffered from the ravages of time and lack of adequate maintenance and the location of the University had become a problem. It

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ILLUS 1 Plan of the city of Glasgow 1848–9; engraved for the Post Office Directory by Joseph Swan. The plan shows the site of the existing College, the proposed site at Woodlands and the sites which could accommodate the new hospital. A: ground bounded by Sandyford Road on the north, Dumbarton Road on the south and Kelvingrove Road on the west; B: rising ground at Cranstonhill on ground to the west of the Glasgow Water Company's Reservoir; C: ground bounded by West St Vincent Street on the north, William Street on the south and Elderslie Street on the west; D: either of two portions of ground bounded by St Vincent Street; E: between North Street and Sandyford Street (from the Mitchell Library, Glasgow)



ILLUS 2 View of Glasgow University from Slezer's 'Theatrum Scotia' published 1693 (from the Mitchell Library, Glasgow)

had originally been situated on the edge of the city surrounded by gardens and open ground. Industrial and commercial expansion dominated the area and the former merchant houses of the High Street had become overcrowded and insanitary lower class housing. The College administrators thought it unfitting that students should be taught in such an environment.

Faculty Minutes dated 29 August 1845 indicated that, earlier in the month, Knox and Finlay, agents for the Glasgow, Airdrie & Monklands Junction Railway Company (GAMJRC), had raised the question of purchasing a strip of ground 100 yards wide from the University on either the northern or southern boundaries of the University grounds. This would allow the GAMJRC to extend their railway line and build a terminus in the High Street. Should the College agree to sell at a reasonable price, the GAMJRC would recommend to their directors that they make an offer for the whole site. The Faculty did not reject the offer out of hand and appointed Dr Macfarlan, the Principal of Glasgow University, and Mr Alan Alexander Maconachie, Advocate Professor of Laws, to consider the offer and meet the GAMJRC.³

In 1845 there was intense speculation in railway company investment. The *Glasgow Herald* warned of the dangers of such widespread speculations in an article appearing

on 14 April, citing the panics of 1825 and 1836 and concluding that:

the same would follow the rail speculations of 1845, share speculation in the share markets of London and the provinces had become so intensive that they were far beyond the bona fida means of the speculators.⁴

This warning was prophetic in the case of Glasgow University's proposed move to a new site at Woodlands.

THE COLLEGE REMOVAL ACT

By November 1845, negotiations between the parties had progressed to a proposal by the GAMJRC to purchase a new site and erect new buildings in exchange for the college grounds. A letter from Mr Knox, the GAMJRC's agent, was produced at a Faculty meeting held on 7 November 1845. The letter pointed out that the University would need to apply to Parliament for a Private Bill before any exchange could take place. It was minuted that:

In case it may be deemed necessary to give notices for an application to Parliament on the part of the College for power to sell the College to this company the meeting agrees to be at the expense of such notices.⁵

However, the issue of notices would only take place if the University Faculty had an assurance in writing from the GAMJRC that the issue of such notices would not bind or irretrievably commit the University to pursue the proposed exchange unless satisfied with the terms offered.⁶

Throughout the negotiations the Faculty made sure there were no legal loopholes which would incur any liability. Richardson, Connell & Loch, the University's London solicitors, were instructed to issue the necessary notices. They, in turn, wrote to their Scottish counterparts Messrs Mitchell, Henderson & Mitchell on 13 November 1845 confirming the notices had

been dealt with and that the Parliamentary Bill allowing the exchange to take place would be introduced in the next session of Parliament. Mr Richardson indicated that he was confident nothing would prevent the Bill becoming law and added:

From what I saw even walking up the High Street to call upon the Principal, indicative of vice and destitution and misery in its most abject form. I have concluded an opinion of the impropriety of the present situation of that great institution which I have no words to express.⁷

However, the Act met with fierce opposition in both Houses of Parliament and at committee stage, and the opposition was:

offered in the name of one member of the Faculty of the College and of several members of the Senate of the University not members of the Faculty and nominally supported by them, but managed by the Agents and Counsel and at the expense of the Caledonian Railway Company who had vigorously opposed the Act of the Railway Company to whose scheme they had an unsuccessful rival before parliament.⁸

At a late stage in its passage through Parliament the Prime Minister, Lord John Russell, in an attempt to prevent further opposition in the House of Commons, had the following proviso inserted in the Bill under the second section of the statute:

Provided always and be it enacted that nothing herein contained shall ratify confirm or establish or be deemed or taken to ratify confirm or establish the said recited contract and agreement, or any part thereof, until the same and the matters therein contained shall have been enquired into and examined and approved of by the Lords Commissioners of Her Majesty's Treasury nor until approbation shall have been signified in writing to the Commissioners appointed by this Act and published in the Edinburgh Gazette.⁹

This clause was to cause protracted delays in securing approval of a suitable design. Nevertheless, the Lords of the Treasury entrusted

with this remit were not solely responsible for delaying approval, as the submissions presented to them were in most instances inaccurate and incomplete.

It is not surprising the University authorities had reacted quickly to the GAMJRC's offer, as they were being given the opportunity to relocate to a new site with purpose-built accommodation at no cost to the University. However, the authorities' judgement was affected, as there is no evidence to suggest that they had instigated any kind of financial check on the viability of the GAMJRC.

Dr William Fleming was one dissenting voice at the speed with which the Faculty conducted negotiations and his protest is recorded in Faculty Minutes dated 6 February 1846. He protested that the transfer to Woodlands was affecting not only the governing body but the students and public. He felt that the negotiations should be carried out with great care and that no steps should be taken until all concerns had been fully appraised. Each step should be deliberated on fully, due to the seriousness of the implied move; his protest was made to: 'protect himself and others from the consequences of what he deemed undue precipitation of informal and irregular procedure'.¹⁰ It was made known that he did not agree with the Faculty's decision to bring a Bill before Parliament and he dissented from the Faculty's resolution to present a petition to the House of Lords for that purpose, insisting that 'he would be free from any consequences following thereon'.¹¹

By June 1846 the College and the GAMJRC had resolved their differences and a draft agreement was drawn up; all that remained was for the College Removal Act to become law. Principal Macfarlan received a copy of a letter dated 6 August 1846 from the Secretary of the Home Department of Her Majesty's Government addressed to the Right Hon the Lord Advocate of Scotland. This letter allayed the College's fears about the successful passage of their Removal Bill through Parliament, which was by no means certain to have succeeded:

My Lord

I am directed by Secretary Sir George Gray to acknowledge receipt of your lordship's letter of the 30th ult enclosing a memorial by the Commissioners appointed by the Principal and Professors constituting the Faculty of the College of Glasgow and a petition by the same Commissioners to Her Majesty, praying her Majesty's sanction to a proposal to change the situation of the present buildings of the Glasgow College and to inform your Lordship that the ground will impose no difficulty in the way of the proposed arrangements.¹²

The College Removal Act (9 & 10 Vict, c 43) received Royal Assent on 24 August 1846, less than one month after the Act incorporating the Glasgow, Airdrie & Monklands Junction Railway Company had received Royal Assent on 27 July 1846. The Removal Act authorized the removal of the University to Woodlands and ratified the draft agreement reached in July between the University and the GAMJRC. Certain sections of the Act were to have a direct bearing on the events leading to the failure of the proposed excambion being successfully accomplished. The Commissioners appointed under the Act were: His Grace James Duke of Montrose, Chancellor of the University; Robert Saunders Dundas, Viscount Melville; John Campbell, Marquis of Breadalbane; Very Rev Dr Duncan Macfarlan, Principal of the College of Glasgow; Alexander Maconachie Esq of Meadowbank; and Andrew Rutherford, Lord Advocate, who may have represented the Government's interest, *ex officio*. The Commissioners were given wide-ranging powers over the final approval of plans and specifications, with authority to reject them either in part or in total and with power to instruct amendments to the design as long as they did not exceed the budget figure; after finally approving the plans, the Commissioners also had supervisory authority during construction. On completion of the buildings the Commissioners, together with an architect of their choice, were to carry out a final inspection and if satisfied would issue a completion report which would be

published in the *Edinburgh Gazette*.¹³ Only then would the lands of Woodlands extending to some 23 imperial acres (9.3 hectares) be purchased by the GAMJRC, in accordance with the agreement, and be transferred legally in favour of the Faculty of the University free of local and parochial burdens. The new buildings were to be designed to a high standard and built using only the best materials and workmanship. The accommodation to be provided was to comprise lecture rooms, classrooms, laboratories, library and museum plus the usual offices.¹⁴ Unlike the old College, the new was to consist wholly of teaching accommodation, as at the new Marischal College in Aberdeen.

Out of the Woodlands site, three-quarters of an acre was to be set aside for the erection of a church or chapel and housing for the professors and Principal. This site was to be approved by Her Majesty's Commission of Woods, Forests, Land Revenues, Works and Buildings (hereafter known as the Commission of Woods and Forests) and an authenticated copy of the designated area was to be deposited in the London office.¹⁵ The Commission was to be responsible for appointing an architect to act as arbiter should any dispute arise between the parties as specified under the second article of their agreement. Such disputes would relate to 'the costs and expense of executing Building and Works delineated on the said Plans and Drawings and described in the said Description and Specification or Alterations thereof'.¹⁶ Although the role allocated to the Commission of Woods and Forests in the Woodlands project was a nominal one, it was now being recognized as an official body.

Within two years of the College Removal Act becoming law, the Faculty had to acquire one acre of ground for the erection of a hospital of 120 beds. The GAMJRC would purchase the ground and allocate £10,000 for its erection and fitting out, and set aside a further £500 per annum for maintenance costs.¹⁷ This clause was the result of objections raised by the medical professors during an early stage of the negotiations with

the GAMJRC. The medical fraternity demanded that a hospital be built adjacent to the university. It was felt that the distance between Woodlands and the Royal Infirmary was too great, making it difficult to teach students. Mr McClelland, Secretary of the GAMJRC, wrote to the Faculty on 5 February 1846 objecting to the requirement that the GAMJRC should fund the new hospital. He pointed out the present University site did not have a hospital attached to it and the feeling of the GAMJRC was that the question of a new hospital was a matter for the citizens of Glasgow. The Faculty rejected the goodwill offer of £1000 made by the GAMJRC, holding out for the full £10,000.¹⁸ To secure the deal, the GAMJRC finally agreed to provide the necessary funding.¹⁹

APPOINTMENT OF THE ARCHITECT

John Baird (1798–1859), an established Glasgow architect, was commissioned by the GAMJRC to prepare drawings for the new University buildings at Woodlands sometime after August 1845:

Mr Baird was you know employed to prepare a set of actual plans in consequence of his acquaintance with the subject and because it was considered that he could in all probability produce such plans within the limited expense and a short period.²⁰

Little is known about Baird's early life and education other than that he was born at Dalmuir, Dumbartonshire. In 1813 he was articled to an uncle named Shepherd whose practice he inherited in 1818 at the early age of 20. Throughout his career, Baird consistently refused to enter architectural competitions, concentrating instead on building up a thriving practice and achieving a leading position amongst the Glasgow architects of his day. In his earlier years he designed in a severe Greek classical revival manner, occasionally adapting Tudor styles for church and country house work, but by the late 1830s he was also working in a

neo-Jacobean manner on some of his domestic commissions.

The style of Baird's design for Woodlands may have been influenced by the existing College buildings, and its elevations by what W H Playfair had achieved at Donaldson's Hospital in Edinburgh. There were certain design parallels as both architects abandoned their original schemes for twin enclosed courtyards in favour of a two-storeyed quadrangular palace block. At this period a kind of neo-Jacobean house style of architecture was being adopted for Scottish university buildings; a style used by both Robert Reid and William Nixon at St Andrews from 1828 onwards, and proposed but in the end not adopted at Aberdeen.²¹ Baird's approach was straightforward and he produced designs characterized by restraint and a fine sense of scale, coupled with a controlled use of quite elaborate neo-Jacobean detail. This was a highly prestigious commission as well as being one of Glasgow's most prominent developments. Had it been erected it would have been an imposing and monumental composition.

It says much for Baird's strength of character that, as a respected Glasgow architect and valuer, he appears to have accepted the continual scrutiny of his designs for Woodlands by the Treasury's architects. Unfortunately, he left no papers which might have given some insight into the discussions he had with these architects, Charles Barry and Edward Blore.

JOHN BAIRD'S DESIGN DRAWINGS 1845–9

First design

In December of 1845, Mr McClelland sent to the Faculty two sets of drawings prepared by Baird. In his letter he indicated that the drawings incorporated the suggestions made by the University staff. He also stressed that these were not a definitive set of drawings and he continued:

It is not intended by placing these plans before you to bind you to the detail of either the elevation

or the interior. I believe they embody most of the views in regard to the proposed buildings, but should you think that improvements not implying much additional cost can be made on the plans I shall be glad if you will communicate the same to me.²²

The drawings were made available for inspection and comment and, as events turned out, the Faculty did not regard them as other than sketch plans. This was not unusual as during the preliminary stages of a design it was, and still is, common enough practice for the client to ask for amendments to be made. However, final approval was not given until 30 March 1849, three years and three different schemes later; each scheme was subjected to much discussion, disagreement and controversy by the University, GAMJRC, Commissioners under the Act and the Lords of Her Majesty's Treasury.²³ In January 1846, the University Faculty agreed to a proposal by Mr Alan Alexander Maconachie that a set of Baird's drawings be sent to W H Playfair for his comments, an action indicating some dissatisfaction with Baird's design. Playfair was also asked to prepare an estimated cost of the building and then meet with Baird and the Principal to discuss any changes he thought necessary.

James Mitchell, the University's legal representative, wrote to Robert Knox, who appeared to be alive to the situation when he drew attention to the hurried way in which the plans had been prepared. This resulted in several objections to the accommodation that was to be provided. Mitchell advised that it would be prudent to remove these objections before submitting any drawings to either the Commissioners under the Act or to the Lords of the Treasury. Perhaps this was the underlying reason the Faculty decided to approach Playfair,²⁴ who may have been recommended by Rutherford, a close friend of Playfair's and one of the Donaldson's Hospital trustees. Prudent as always, the Principal wrote to the GAMJRC asking if they would defray the cost of Playfair's

services. This turned out to be unnecessary as Playfair very promptly replied that he would not work on another architect's plans.²⁵

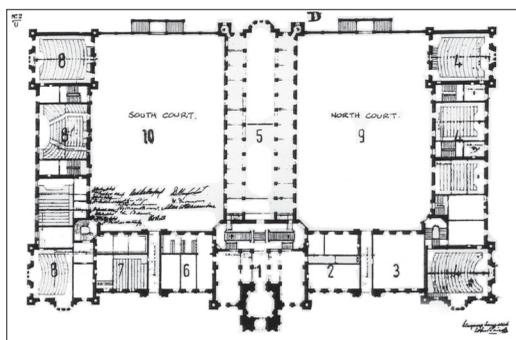
One objection to the original plans centred on the inadequacy of professors' housing. For example, Dr Hill, Professor of Divinity, objected to the house allocated to him on the grounds that he merited a larger house commensurate with his rank in the University.²⁶ It was pointed out that no provision had been made for a chapel and it was agreed that a Divinity classroom, if fitted up properly, would serve. Baird was asked to prepare a comparative statement of the present accommodation provided by the existing University library and museum in relation to the space allocated in his plans. The Faculty were unanimous that the floor space provided was insufficient and it was suggested that the remedy would be to extend these rooms in the form of a transept.²⁷ Baird agreed to rectify these faults but his drawings were still unfinished at the end of January 1846, at which point the question of the new hospital was raised with the GAMJRC.

On 5 February 1846 Mr McClelland wrote on behalf of the GAMJRC stating they had no objection to either Mr Decimus Burton or Mr Edward Blore revising Baird's plans 'in the manner proposed by you'.²⁸ The whole question as to why the Faculty and the Treasury felt the need for reassurance by inviting other architects to co-operate with Baird suggests a lack of confidence in his ability. At this juncture, Blore did not produce any drawings and he was not instructed to do so until after March 1847. Anne Ross, writing in the *Glasgow College Courant*, is of the opinion Baird consulted privately with Blore during a visit to Glasgow on official business; this is an unlikely situation.²⁹ It is clear that Baird met Blore at some point because Blore recommended that the floor between the library and museum should be arched to make it more fire-resistant, but there is no indication when this meeting took place.

If it was thought necessary that an architect of some standing was required to revise Baird's drawings, Edward Blore would more than fit

the bill. Although he was never an attached architect with the English Office of Works, he was engaged in 1832 by the Government to carry out the completion of Buckingham Palace. He had also worked on Windsor Castle and Hampton Court and was collaborating on the restoration of Glasgow Cathedral with William Nixon, the newly appointed Commissioner of Woods and Forests in Scotland. By the late 1840s, Nixon's health was failing badly and he had probably nominated Blore who, with his knowledge of Glasgow, was the person best suited to look after Government interests. There is a reference to Baird having visited London and, although no dates or reasons for his visit are given, it is possible it could have been in early 1846. Baird, as instructed by the University Faculty, prepared amendments to his original drawings on:

Detached slips of paper which were pinned or wafered to the original plans so as to exhibit both library and museum in the form of letter T and it was understood by members of the Faculty that this was the scheme to have been carried into effect in executing the building.³⁰



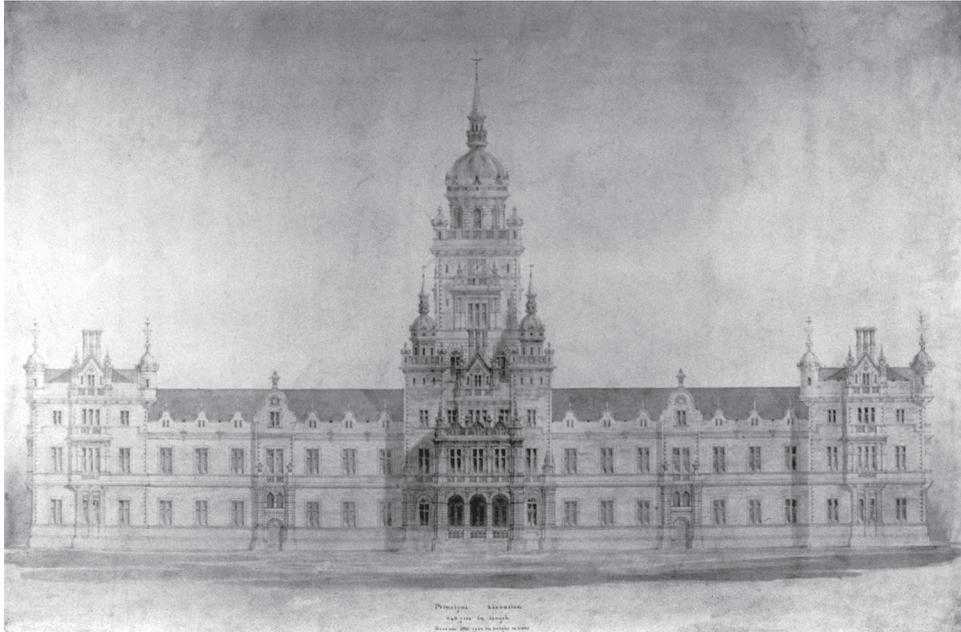
ILLUS 3 John Baird's first design, ground floor plan: 1, Entrance Hall; 2, Professors' Reading Room; 3, Medical Students' Reading Room; 4, Medical Teaching Wing; 5, Library (Museum on first floor); 6, Students' Reading Room; 7, Examination Hall, Dining Room and Recreation Area; 8, Arts Teaching Wing – Arts, Divinity and Law (from the Glasgow University Archives)

Baird's first set of drawings, lettered A–R with specifications, were prepared sometime between the autumn of 1845 and late spring of 1846. These drawings and an estimated cost of £75,000 formed the basis on which the College Removal Act and Agreement was drafted.³¹ Drawings A–R, along with elevational drawings of the first scheme, do not appear to be in existence. However, a ground floor plan clearly marked with the letter D was still available in 1985 and, although the original has subsequently disappeared, a copy is held in the Glasgow University Archives (illus 3). The plan adopted the shape of the letter E with lecture halls and classrooms confined to the side wings. The main entrance hall, flanked by class libraries and entrances to the courtyard, formed the main frontage of the building; the central spine housed the library on the ground floor with the museum on the first floor directly above.

Dated July 1846, this first ground floor design was signed by John Baird and countersigned by Dr Macfarlan, Dr W Thomson and Alan Alexander Maconnachie for the University with John Sligo, Chairman of the GAMJRC, and Andrew Rutherford, the Lord Advocate, among others. These signatures confirm that this drawing formed part of the original set referred to in clause two of the College Removal Act. Anne Ross states in her article that the plans prepared by John Baird were:

put forward at the passing of the Act as a guide to what was required, though they were made subject to alterations. They were not, however, viewed by the College until after the Act was passed.³²

The evidence shows otherwise because barely three months after the initial meeting between the GAMJRC and the College had taken place, plans had been prepared by the architect after consultation with the Faculty. These plans included explanatory notes and a copy of a letter from Baird to Mr McClelland, referred to in Faculty Minutes as having been delivered.³³ The only persons who would not have seen the plans



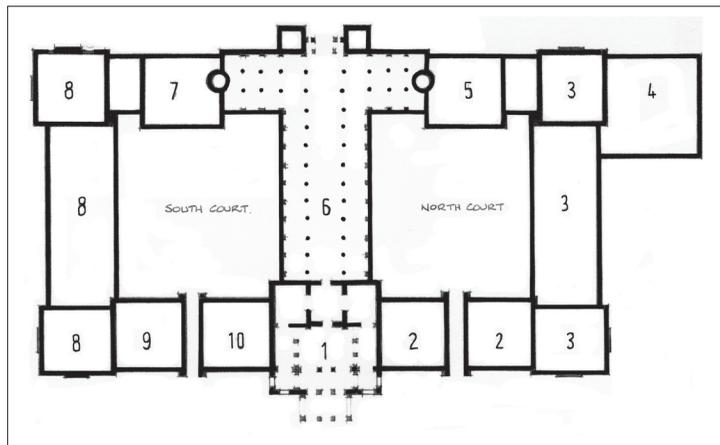
ILLUS 4 John Baird's second design (undated), front elevation (from the Glasgow University Archives)

beforehand were the Commissioners appointed under the Act who had no direct connection with either the College or the GAMJRC.

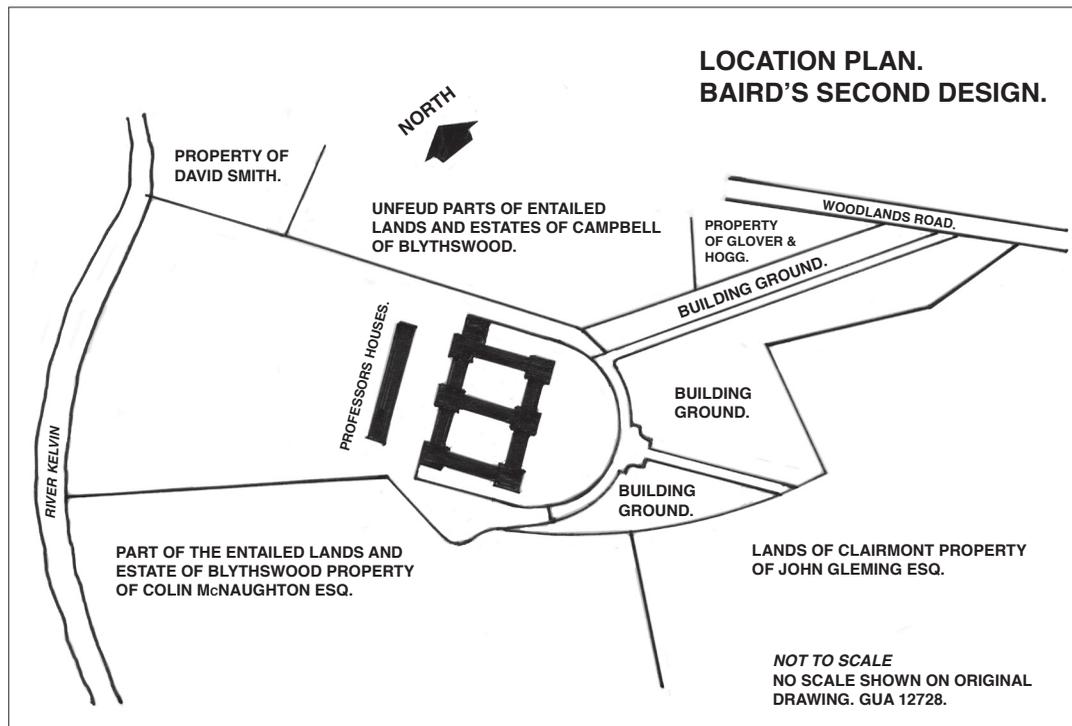
1659. There are, however, sufficient common features in the plans to suggest the elevations of Baird's first scheme must have been similar to his later designs.

Second design

From the initial layout Baird's two subsequent schemes developed. Baird's elevational treatments of his second and third schemes show the building designed in the style of a Palace with Scottish Renaissance features (illus 4 & 7 below).³⁴ The four square towers at each corner of the plan with shallow projecting oriel windows, pepperpot bartizan towers and main central tower suggest that Baird's design was strongly influenced by Heriot's Hospital, built in Edinburgh between 1629 and



ILLUS 5 John Baird's second design, ground floor plan: 1, Entrance Hall; 2, Professors' Library (1), Common Hall (2); 3, Medical Teaching Wing; 4, Chemistry Block; 5, Anatomy; 6, Library (Museum on first floor); 7, Natural History; 8, Arts Teaching Wing – Arts, Divinity and Law; 9, Examination Hall, Dining Room and Reception Area; 10, Students' Reading Room (from the Glasgow University Archives)



ILLUS 6 John Baird's second design, layout plan (from the Glasgow University Archives)

The GAMJRC could not take entry to the College grounds until the plans for the new College had received the necessary approvals. In a letter to the College agents dated 23 October 1846, Knox complained that two months after the College Removal Act became law, drawings which had to be approved by the Faculty and the Commissioners under the Act were not ready to send to the Lords of the Treasury. From the reply he received we find that Baird was working on his revised plans, his second scheme (illus 5 & 6), and had only prepared a plan of the classrooms with a plan of the public rooms to follow. Only after these plans had received Faculty approval would he begin his elevations, otherwise he could have been involved in abortive work.³⁵ Knox's anxiety for his client was understandable as lengthy delays would make it increasingly difficult for the GAMJRC to fulfil their side of the bargain imposed by the Removal Act, that

of having the buildings completed within the stipulated four years.

Despite Knox's agitation at the lack of approved plans he refused to apply pressure on Baird as the GAMJRC's architect. Knox commented, 'as to my endeavours to expedite the preparation of them [the plans] that is a matter with which I have no concern'.³⁶ At the time there was considerable doubt that the College Removal Act, as presented to Parliament, would get the necessary support to become law because of the opposition against it. In anticipation that this might happen, the GAMJRC had obtained:

an option to purchase within six months of the passing of their Act the Water Company's ground at Duke Street extending to about six acres for the purpose of making a Terminus there.³⁷

Time was running out for the GAMJRC; a decision would shortly be required on their

option to purchase the Water Company's ground, placing them in a real dilemma.

Parliament, under the Act and Agreement, had taken steps to ensure the accommodation needs of the College were satisfied prior to any approval being issued by the Lords of the Treasury. In preparing the second scheme both Baird and the Faculty deviated as little as they could from the original plan by keeping within the first estimated figure. They had kept in mind the need to satisfy the Treasury and the accommodation requirements of the University. By the end of December 1846, things had moved forward and revised drawings had been lodged with the Faculty, and placed in the Fore-Hall of the University for the professors' perusal and comments.

A meeting was held in Edinburgh on 4 January 1847 with the Commissioners under the Act – the Duke of Montrose, Viscount Melville, Principal Macfarlan and Alexander Maconachie of Meadowbank – at the Chambers of the Lord Advocate, Andrew Rutherford MP.³⁸ It was agreed the amended drawings would be sent to the Lords of Her Majesty's Treasury in London for 'their interim approbation'.³⁹ Baird had prepared estimated costs which were within the amount stipulated in the Agreement, but why these costs were not included with the plans when they were submitted to the Treasury is unexplained. It transpired that even without including the estimated cost the submission was incomplete: drawings for the Principal's and professors' houses had not been included because they were not ready.⁴⁰

The Lords of the Treasury were obviously dissatisfied with the submission but no record of their objections has been found. The Treasury remitted the plans to Charles Barry and Augustus Welby Pugin on 17 February 1847 for their advice and comments. Baird's second design was clearly an adaptation of his first scheme, which now consisted of a rectangular plan enclosing two quadrangles each 100 ft (30.48m) square. The transept addition to the library and museum is evident and is clearly expressed in

the elevation. The remaining space between the central spine and end towers of the side wings was enclosed with additional single-storey classrooms. An additional chemistry block was added to the medical wing outwith the main building, the main entrance hall was rearranged internally with an entrance porch added (illus 5). Elevationally, the large projecting oriel window at the north end of the library and museum was omitted and, similarly, the centrally placed windows on the end towers were redesigned to form a smaller projection (illus 4). The layout plan (illus 6) shows the building aligned facing the south-east with the professors' houses forming a block at the rear of the building. In their report, Barry and Pugin recommended the re-siting of the professors' houses as they thought the houses would block the light from the rear of the building.

The elevations of Baird's second and third schemes were drawn to a small scale without any notation. In the absence of annotated drawings or a copy of the relevant specification, certain assumptions have been made regarding the decorative features and finishes. The principal elevation extends to 345ft (105.15m) in length, the dominant features being the 48ft (14.62m) square corner towers which all have the same detailing on both exposed faces. These towers rise a full storey above the eaves course of the building, which links them with the striking entrance tower that rises into an octagonal drum with a dome and cupola, the height from ground level to the weather vane being 180ft (54.86m).

The elevational treatment for Baird's third and final scheme followed the same pattern. Although he disliked buildings which combined elements of both Italian and Saxon architecture, Pugin, unlike Barry, was struck with the beauty of Baird's elevations. He refused to make suggestions for their improvement or provide new elevations.⁴¹ Also, despite a reference in the Faculty Minutes of 4 August 1847 to Barry having revised the elevations, he did not in fact do so.⁴² On 26 March 1847, Principal Macfarlan received Barry and Pugin's report from the

Secretary of the Treasury.⁴³ The report and the draft of a letter to Dr Macfarlan was passed to the Removal Committee, which stated that 'their Lordships request that the report now sent may not be printed or published'; the College appears to have acceded to this request.⁴⁴

Dr Fleming, in his Memorial to the Lords Commissioners of the Treasury dated 2 April 1847, registered his disquiet at the Faculty's handling of the negotiations concerning the removal of the College to Woodlands. He made a valid point when he wrote:

This report was not produced nor read to the Faculty so that the Memorialist is in ignorance of its contents ... knows not in what way the foresaid report may be submitted or whether it may be submitted at all.⁴⁵

The report dealt with specific questions raised by the Lords Commissioners of the Treasury and covered both Baird's original and second schemes. The answers provided by Barry and Pugin were based on the plans and documents supplied by the Treasury, and the items raised covered building costs, architectural taste and the planning of the building. The major factor which probably disturbed the Treasury Lords most was the massive increase in the estimated cost; if the GAMJRC had found out about the increase it would have given them grounds to rethink their position. According to the figures presented by Barry and Pugin, the costs of Baird's original scheme, described as the building referred to in Schedule A of the College Removal Act, including the £10,000 allowed for the hospital, amounted to £175,000 (not the £75,000 estimated by Baird). The costs Barry and Pugin estimated for Baird's revised scheme also included the hospital and had risen by 12% to £197,000.⁴⁶ Price differentials in building costs between Scotland and Southern England could not have been solely responsible for such a large increase. Unfortunately, the costs were not broken down into separate trades, which would at least have given an indication of where and how the increases had arisen. Proof that these estimated

costs were highly inflated is borne out when Treasury approval was finally granted to Baird's third and final scheme. Baird, whose worth as a valuer was widely recognized, estimated the cost to be £82,500, 10% above his original estimate, estimates that were confirmed and backed up by prices produced by local Glasgow tradesmen. But it has to be remembered Blore's elevations were very much simpler than Baird's and this would be reflected in the price.

In their opinion, Barry and Pugin thought Baird's first scheme was lacking 'in purity of style and was not of a high class of art or in any respect very meritorious'. They were honest enough to say that the building's mass and height, sited as it was in 'a commanding position,' could not fail to have a striking effect.⁴⁷ In highlighting planning deficiencies they were especially concerned about circulation within the building, one of the points raised by both the Regius Professors and Dr Fleming when they submitted their private memorials independently to the Treasury in March and April 1847.⁴⁸ Baird's second scheme was looked on more favourably because it had some artistic merit. The last paragraph of Barry and Pugin's report succinctly sums up their views on Baird's proposals:

In other words the revised plans are very similar to the original set and are consequently open to the same objections; therefore apart from the consideration of the additional accommodation which they afford we consider the arrangement of them as a whole more objectionable than that of the original design.⁴⁹

The Treasury not only had to consider the criticisms of Barry and Pugin on the suitability of Baird's design, they also had to take into account the private memorials from members of the Faculty. These memorials may or may not have affected their final decision, but they could not altogether be ignored. At the very least they would have added to the Treasury's unease. Under the circumstances, the Treasury had little option but to withhold approval.

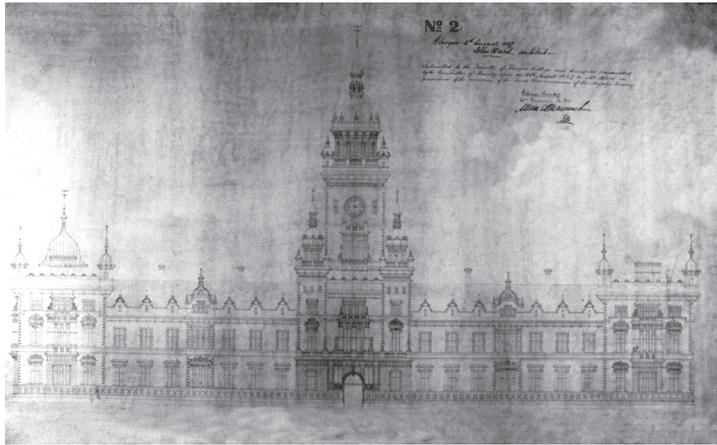
The Treasury's decision no doubt upset the Faculty, as the members had been confident of approval being granted. They were of the opinion that Barry and Pugin's report was based on insufficient knowledge of the site at Woodlands and of the needs of an institution like Glasgow University. On 20 March 1847, the Removal Committee of the Faculty submitted their 'Observations on the Report'⁵⁰ to the Treasury. In their lengthy submission they began by asking the question, 'Was there anything in Barry and Pugin's report which prevented the Treasury issuing approval in principle?', approval which the second clause of the Removal Act saw as necessary to receiving the consent of the legislature. The Removal Act had become law but the obligations that it imposed could not be implemented through lack of Treasury consent. The College administrators were worried that as long as this state of uncertainty continued it would give opportunities to those opposed to the College removal to defeat the measure by indirect means. It was recognized that the Treasury's main concern was the inflated estimates with which the Committee did not agree. The Treasury were told that experienced Glasgow tradesmen had given evidence to committees of both Houses of Parliament in which they stated they would be prepared to contract for the work within the original estimate and provide the necessary securities. The College held the view that this should allay the Treasury's monetary concerns thereby allowing them to give outline approval. It was understood conditional approval would be subject to further amendments being made to the plans and they acknowledged that Baird's first scheme had been produced in haste. The crux of the matter was that this design had formed the basis on which the College Removal Act had become law. The original estimated cost had become set in tablets of stone in the minds of the Faculty, showing their naivety in expecting Baird to work wonders by further amending the design and staying within the budget figure plus a further 10%.

The Removal Committee acknowledged the architectural style chosen was not of a pure character but it had 'recommended itself to the Faculty by being in the style of the old College'.⁵¹ However, the Committee's complaint that Barry and Pugin's report was flawed through lack of local knowledge was not wholly justified. A site visit may have been advisable but it was not absolutely necessary as any competent architect could have produced a report on a building and its site development, given enough correct information. In this instance the two layout plans still in existence are devoid of spot levels and contours, essential information in understanding the configuration of any site. It is a fair assumption that the information supplied by the Treasury did not include this information, and there is no way of knowing if Barry and Pugin were made aware of the drop in level across the site to the Kelvin Burn. If they were, this knowledge may have been reflected in their estimated costs, as they perhaps made an over-generous allowance for additional underbuilding.

The Prime Minister, Lord John Russell, agreed to meet Dr William Thomson, Clerk to the Faculty, to discuss this matter after he had met Barry and Pugin to resolve their opposition to Baird's plans. Astonishingly, it was thought unnecessary that Baird should be present at this meeting. The Dean of the Faculty and Mr Macconnachie were similarly meeting with the Lord Advocate, Andrew Rutherford, on the same subject.⁵² Every effort was thus being made to have this unexpected impasse removed. The outcome was that the Faculty and the Commissioners under the Act instructed Baird to draw up a further set of plans incorporating the points raised in Barry and Pugin's report. This was to be the third and final revision of the plan.

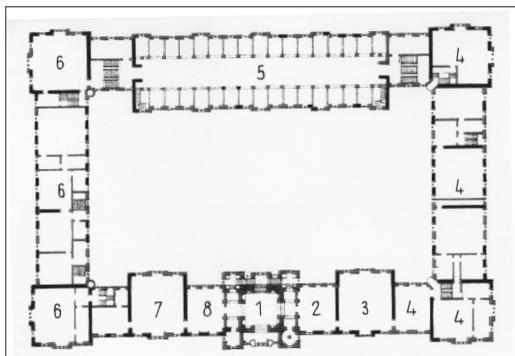
Third design

In the third design the main building became a large rectangular block surrounding one large



ILLUS 7 John Baird's third design, front elevation (from the Glasgow University Archives)

quadrangle, allowing more light and air into the building (illus 7 & 8). On the recommendation of Barry and Pugin, the library and museum were housed on the north-west side of the building and extended in length by 60ft (18.28m); the side wings were increased in length by 30ft (9.14m) and the third storey removed; the professors' houses were re-sited in two rows of six houses facing each other at right angles

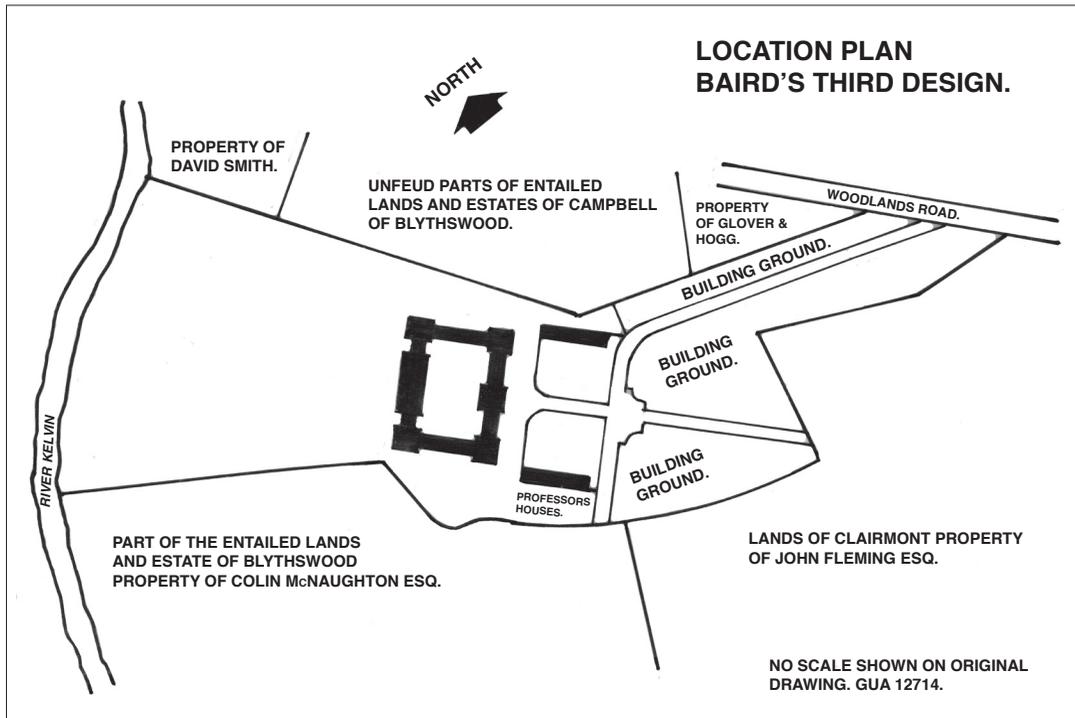


ILLUS 8 John Baird's third design, ground floor plan: 1, Entrance Hall; 2, Professors' Library (1), Common Hall (2); 3, Students' Reading Room; 4, Medical Teaching Wing; 5, Library (Museum on first floor); 6, Arts Teaching Wing – Arts, Divinity and Law; 7, Examination Hall, Dining Room and Reception Area; 8, Professors' Reading Room (from the Glasgow University Archives)

to the main frontage (illus 9). Baird's final elevations were designed in the same Scots Renaissance style, showing no real divergence from his previous set. The major changes were the disappearance of the entrance porch and the change of roof over the end towers, the pitched roof being replaced in Baird's second scheme by an ogival roof (illus 4). The Faculty approved Baird's third scheme on 4 August 1847, and the Removal Committee resubmitted the amended drawings to the

Treasury on 25 August 1847, hoping for early approval. Unfortunately, the Treasury Lords thought the cost of the building as submitted would exceed the original estimated figure agreed in the Removal Act. This caused further frustration to all concerned when the Treasury decided that Blore should now examine the elevations and structure. He was then engaged at a cost of £300 to prepare alternative elevations.⁵³

Nothing appears to have happened for a few months until March 1848 when James Mitchell, acting for the University, wrote to Robert Knox complaining that despite Baird's efforts to amend his elevations, the Treasury had insisted that 'new elevations projected by Mr Blore must be procured'.⁵⁴ In September 1848, John Richardson, the University's London solicitor, wrote to Blore intimating that the Treasury had approved the Glasgow College Agreement but were still awaiting the final drawings and asked if: 'you will still agree to revise and correct the elevation which I would have no doubt ensure at once the Sanction of the Treasury'.⁵⁵ Richardson continued by asking if Blore could quickly resolve the matter of the elevations. Richardson also asked James Mitchell to write officially to Blore to try and get him to expedite



ILLUS 9 John Baird's third design, layout plan (from the Glasgow University Archives)

the preparation of the elevations; he made a significant point that Blore may have become dissatisfied at the continuing uncertainty and delay which were, he quickly added, 'not attributable to us'.⁵⁶

Blore replied in October 1848 confirming what Richardson had suspected, which was that when he had been in Glasgow all the talk was of the abandonment of the project. During his time in Glasgow, Blore had not met any of the College authorities. He stated that when he entered into an engagement he invariably fulfilled it:

If therefore I have a satisfactory assurance that my terms will be honourably complied with you need not doubt my fulfilling my part with all practical rapidity.⁵⁷

On 12 July 1848, the Treasury gave approval in principle to the College Removal Act (9 & 10 Vict, c 43), which allowed the excambion to take place but no steps could be taken to implement

the Act until the plans and specifications had been submitted to them for their approval. The Lord Advocate had given his opinion that the 'prayer of the memorial be safely granted', as this was necessary to enable the College authorities to make use of some important rights they had under the Agreement and the Act. In allowing approval in principle, the Lords of the Treasury would not lose overall control as the erection of buildings could not begin until the plans and specifications had been approved.⁵⁸ The notice of Treasury approval was finally published in the *Edinburgh Gazette* on 19 July 1848.

SELECTION OF HOSPITAL SITE

Under the terms of the College Removal Act, the Faculty were to have purchased an acre of ground for the erection of a hospital paid for



ILLUS 10 Edward Blore's revised front elevation, March 1849 (from the Glasgow University Archives)

by the GAMJRC within two years of the Act becoming law.⁵⁹ Treasury approval granted in July 1848 made this possible and the Removal Committee circulated all the medical professors on the selection of a suitable site and listing five areas (see illus 1): 'A – ground bounded by Sandyford Road on the north, Dumbarton Road on the south and Kelvingrove Road on the west; B – rising ground at Cranstonhill on ground to the west of the Glasgow Water Company's Reservoir; C – ground bounded by West St Vincent Street on the north, William Street on the south and Elderslie Street on the west; D – either of two portions of ground bounded by St Vincent Street'.⁶⁰ None of these sites was found to be suitable and the fifth site, nearer the New College between North Street and Sandyford Street, was chosen (marked E on illus 1⁶¹). This 5300sq yd (4431sq m) site was purchased by the Faculty at a price of £1.00 per sq yd and ground burdens amounted to £10 per acre.

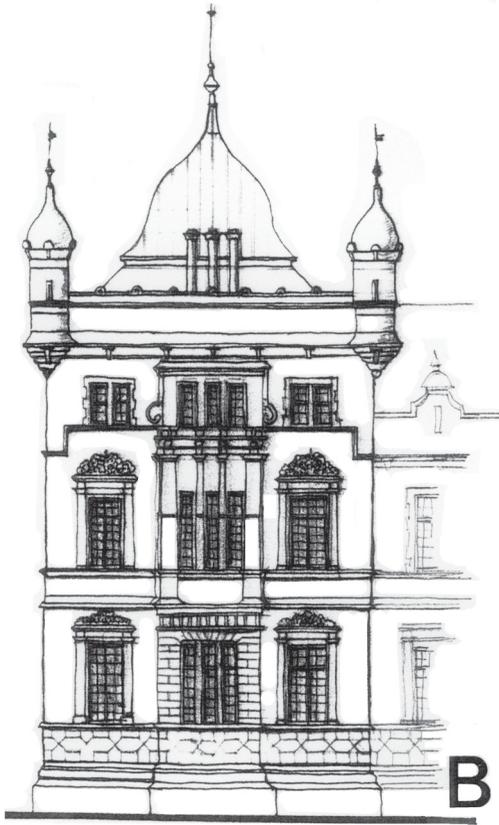
The GAMJRC were reminded of their obligations under the Removal Act and Agreement, and were asked to remit £4840 to the College, being the price of one acre of land. They were also asked to deposit £10,000 in the College's bank to cover the cost and charges connected with the erection of the hospital.⁶²

The GAMJRC's law agents expressed surprise at this request and intimated that the GAMJRC were refusing to pay any of these costs, having 'thought all idea of building a New College and Hospital had been abandoned, for the time which had elapsed since the College Act was obtained'.⁶³ This in turn led to the Faculty reporting 'their unqualified astonishment at the GAMJRC expressing their intention of resiling from their agreement with the College'.⁶⁴

The College law agents were of the opinion that as the Agreement was drawn up under and ratified by an Act of Parliament, the conditions of the



ILLUS 11a Woodlands end towers, comparative designs of Baird and Blore designs. John Baird's second design, 1847 (author's sketch)



ILLUS 11b Woodlands end towers, comparative designs of Baird and Blore designs. John Baird's third design, 1848 (author's sketches)

Agreement still applied. This had become a public deed in which the Crown, University and public had acquired interests, as well as the Faculty who, as administrators of the College, were bound to require its fulfilment. In March 1849, the Removal Committee took Counsel's opinion on the situation existing between themselves and the GAMJRC. They also submitted a Memorial to the Lord Advocate, John Marshall, Charles Neave and John Wood. In Counsel's opinion, the Agreement was still binding and they advised the memorialists to do everything in their power to get Treasury approval of the plans and specification as soon as possible. On receipt of approval they

were immediately to pass the drawings on to the GAMJRC for execution. It would also be reasonable to offer the GAMJRC a period of four years for the erection of the buildings from the approval date. Only if the company refused to execute the Agreement would they recommend that the College raise an action in the Court of Session.⁶⁵

Meanwhile, the saga of obtaining Treasury approval continued and the Faculty Minutes of 20 March 1849 record that Baird's plans had been forwarded to Blore, that the revised elevations were now ready and that Blore wished to meet Baird before he finally handed them over. Baird went to London and met Blore but the outcome of this meeting is not known.



ILLUS 11c Woodlands end towers, comparative designs of Baird and Blore designs. Edward Blore's revised design, 1849 (author's sketch)

Nevertheless, Blore did produce elevations which, in the author's opinion, were dull and staid compared to Baird's (illus 10 & 11). Blore had previously expressed fears as to the payment of his fees; these were to prove well-founded. In March 1849 Richardson met a disappointed Blore in London. His fees, as eventually agreed, had not been remitted to him on receipt of his drawings.⁶⁶ Richardson, the College's London agent, submitted the revised elevations to the Lords of the Treasury, who through their secretary, C E Trevelyan, wrote the following letter to the Duke of Montrose, Chancellor of the University, who was also a Commissioner under the Act. The letter stated:

that their Lordships have no objections to offer to Mr Blore's elevation, but before they can give their final sanction ... it must be shown that the expense will not exceed ... the cost of executing Mr Baird's plans and ten per cent more.⁶⁷

Baird was instructed by the Removal Committee to provide them with an updated estimated cost, which he duly submitted to the Committee. In order to verify his own calculations, Baird submitted the final drawings to the builders who had helped him in estimating the cost of the first set of plans. Baird's figure of £75,000 was basically the same as the original estimate, as the costs of labour and materials in Glasgow in 1849 were substantially the same as in 1846:

The builders have adhered to this sum as the present cost of executing the original docketted plans and have taken it, and ten per cent upon it or £82,500 in all as the cost within which the work delineated on the new plans can at this moment be executed.⁶⁸

On Blore's recommendation, Baird also made provision for fireproofing work to the library, which incurred an additional small cost; the final 1846 estimate was therefore £84,000. Baird was confident that contracts could be arranged with capable builders for building the new University at such a cost.

The latest estimates were forwarded to London for the attention of Her Majesty's Lords Commissioners of the Treasury who accepted them as being satisfactory. Their Lordships immediately returned the plans to the Faculty and the Commissioners under the Act for their approval. The *Edinburgh Gazette* of 27 March 1849 published the approval by the Lords Commissioners of the Treasury from 27 March 1849.⁶⁹ The Commissioners under the Act approved the amended drawings at their meeting in Edinburgh on 30 March. By 30 April 1849 the approved drawings and specifications were deposited in the offices of Messrs Mitchell, Allardice & Mitchell, who then passed the drawings on to the GAMJRC, 'for the use of your company in proceeding to build or contract for the work on production of your written authority'.⁷⁰ After years of indecision, a final compromise had been reached when Baird's plan, albeit clothed in Blore's much less ornate elevations, was accepted and approved.

Acting on advice of counsel, the College authorities raised an action against the Glasgow, Airdrie & Monklands Junction Railway Company for failing to fulfill their obligations. The GAMJRC, along with others, had fallen on hard times, due to bad investments, social unrest and a depressed national economy. The Committee appointed by the Faculty to deal with the action reported on 6 December 1850 that they had reached an agreement with the GAMJRC; in return for the University withdrawing their action, the GAMJRC would pay the College £12,700 compensation.⁷¹ The College was fortunate in reaching such an agreement as the GAMJRC had applied to Parliament for a winding up Act. The University used the money to pay off the loan taken out with the Bank of Scotland for the purchase of the hospital site. When all other expenses were settled, the remaining balance amounted to £10,000. This was set aside in a Fabric Fund to be used on any renovations thought necessary on the Old College Buildings. The University's

hopes of achieving a transfer to new buildings at Woodlands Hill had temporarily come to an end.

What had begun as a project full of promise for both the College authorities and the GAMJRC thus ended in disappointment for both. The University authorities were in the end very fortunate in the final outcome, receiving a lump sum in compensation. If the GAMJRC had remained financially buoyant despite the protracted delays, all might have been well. From the beginning the College authorities had made it clear that if the College Removal Act did not become law, the property of the College was not to be interfered with. The GAMJRC had different ideas as they had no intention of abandoning the site and had intended to seek parliamentary powers to acquire only a portion of the College grounds on which to build their terminus. This led to protracted negotiations between the parties and proved to be a major stumbling block in an early agreement being reached. It was unfortunate that, before the College Removal Act became law, no agreement had been reached between the Faculty and the architect on a suitable design. The Faculty's insistence that Baird consult first with Playfair and then with Blore had been counter-productive. The whole question of having drawings approved was further aggravated by the Lords of the Treasury insisting on appointing consultant architects of their own, who in turn asked for further amendments.

The time-scale set out in the College Removal Act that all buildings were to be erected and fitted out within four years of the Act becoming law had proved to be unrealistic. The Woodlands scheme may have foundered but the dissatisfaction of the majority of the University Senate with their present surroundings did not. Baird, the GAMJRC's architect, had had the unenviable task of trying to please more than one master in very wearing circumstances. Baird's account for his professional services was still unpaid in November 1853 and it is questionable if he ever received what was owing to him.⁷² It

might have given him some satisfaction, if he had still been alive in 1863, to know that his final plan formed the basis from which the new University buildings evolved at Gilmorehill. The delays may in the event have been fortunate as the project could have bankrupted the GAMJRC during construction and left the University with a half-built structure. It would be unwise to conclude that the GAMJRC, given a four-year construction programme, could have delivered the project complete if building had begun in 1846 or 1847.

FURTHER ATTEMPTS BY THE SENATE TO SECURE GOVERNMENT FUNDING

After the collapse of the Woodlands scheme, the University continued to occupy the Old College. Growing discontent with the condition of the existing accommodation as it continued to deteriorate was a source of concern to the College administrators. In November 1852, the Senate presented a Memorial to the Queen and to the Lords of the Treasury asking for financial assistance to improve the condition of College property. The Memorial did not expressly mention 'the removal of the College buildings from their present situation', but the hope was that if the petition was granted this would be the end result. The Memorial argued that it had become necessary to appoint nine new professorships to cope with the expanding curriculum and increased student numbers. The already inadequate classroom accommodation could no longer cope; to prevent further deterioration, the University needed financial help to maintain the status quo. Within the past 50 years the population of Glasgow had quadrupled, and the University was surrounded by a dense mass of the labouring population living in overcrowded, unsanitary accommodation. Close at hand were a mixture of undesirable chemical and other dirty manufacturing concerns that created far from satisfactory environment conditions which the memorialists saw as being detrimental to

the successful redevelopment of the existing University site.

The memorialists also referred to the College Removal Act of 1846 which had set the precedent for the removal of the University to another location. The Senate believed this was the only suitable solution. As a temporary solution it was suggested the Government pay an annual sum, to allow repairs to the fabric to be carried out, and take over the site until such time as a favourable sale could be made. It was hoped the sale would cover a large proportion of the costs of building a new university and repay the annual grants advanced by the Government. It was also pointed out that, since the beginning of the century, other academic institutions had been established in the United Kingdom with financial assistance from the Government, as had the renovation and rebuilding of Scotland's other three universities.⁷³ The Senate no doubt felt they were justified in asking for Government assistance.

In June 1853 a joint deputation of members of the Senate and Faculty travelled to London to lobby the Government and influential back-bench members of Parliament to press the Government to consider their Memorial. On arriving in London, they found that internal University politics had intervened in the form of 'a Memorial adverse to their mission' submitted by the medical professors to the Lords Commissioners of the Treasury.⁷⁴ In it the professors pointed out that the official submission did not make it clear that the Senate's ultimate aim was to move the University to a new location, and that negotiations to achieve such an outcome were already underway. Those professors who supported the official line were housed within the University and would automatically be re-housed in new accommodation in a more fashionable part of the city should the University be re-sited. It was argued that the professors' houses were only occupied during the academic year, that 50 per cent of the professors lived outwith the campus, as did the staff at other Scottish universities,

and there was no need to provide professorial housing. It was also claimed that the sites under consideration were not as accessible from other parts of the city as was the location of the old university. In their opinion, the present site of 15 acres (6 hectares) was large enough to accommodate the additional classrooms and library required without encroaching too much on the students' recreational area. Dismissing the argument that the surrounding environment was having an effect on the health of the staff and students, the medical professors stated there was no hard evidence to support this claim. It was stressed that the existing infirmary was close to the University and convenient for teaching the medical students; a new hospital built adjacent to the new University would not, in their opinion, be large enough to give adequate clinical instruction.⁷⁵ It appears that the underlying cause of dissension within the University was grounded in the anomalous constitution of the University. A judgement given in the Court of Session in 1809 had determined that nine of the 23 teaching professorships were debarred from sitting or voting at Faculty meetings. The Faculty controlled University finances and property, with the exception of the library, and the dissenting professors had no voice in Faculty decisions regarding any University business. Such a distinction was invidious and they had had no hesitation in submitting their own memorial. The official deputation were not deterred by this memorial and carried out their remit, as was made clear in their report to the Senate in November 1853.

The deputation met Lord Aberdeen, the First Lord of the Treasury and the Chancellor of the Exchequer, on 18 June 1853. Lord Aberdeen was well aware of the problems facing the administrators of the Scottish universities in their attempts to upgrade buildings. He had not only served on the Royal Commission for visiting the universities of Scotland in 1826–30, he was also a former Chancellor of the University of Aberdeen.⁷⁶ Others attending were Mr James Anderson MP, late Provost of the City, and Mr

Kennedy of the Board of Works. At this meeting, Lord Aberdeen acknowledged the petitioner's concerns but he thought the House of Commons might be reluctant to vote public money for such a project and he referred to:

the adverse Memorial of the Minority of the Senate, and said that in the event of the House of Commons agreeing to give a grant of money it might possibly be accompanied by conditions which would not be approved of by the whole body of professors ... He further stated that at all events before the government could give their support to such a grant it would be proper that it should be satisfied by an inquiry as to the present state and value of buildings and ground occupied by the University.⁷⁷

After consultation with the Lord Advocate and Deans of Faculties, it was agreed to request that Lord Aberdeen set up the enquiry.

Nothing happened until February 1859 when, on the motion of Dr Jackson, the Senate agreed to submit a second Memorial to Her Majesty in Council. In it they reiterated the points raised in the 1853 submission, adding that at that time they understood Lord Aberdeen would instigate an enquiry into the condition of the University of Glasgow. Nothing had been done in this connection and they referred specifically to the Universities (Scotland) Act (21 & 22, Vict c 83) 1858, and requested Her Majesty to implement the following provision laid down in the Act:

It shall be the duty of the Commissioners herein appointed to take into their deliberate consideration any matter connected with the said Universities to which their attention may be at any time called by instructions issued to them by your Majesty's command.⁷⁸

This Memorial was successful in that Her Majesty, through the Secretary of State, directed the Commissioners under the 1858 Act in May to prepare a report on the buildings of the University of Glasgow. The Commissioners submitted their report on 11 June 1860, after

satisfying themselves that the allegations made by the medical professors were strictly accurate. Their description of the condition of the College buildings 'hardly conveys an adequate idea of their utter unfitness in every respect for the purposes of the University'.⁷⁹ They also agreed that the immediate neighbourhood had deteriorated to such an extent that it was no longer a fit location for an academic institution. To satisfy themselves of the condition and value of the College buildings, the Commissioners requested Robert Matheson, head of the Scottish Office of Works, to report on the structural condition of the fabric. He was asked to prepare a feasibility study for the remodelling and extension of the buildings. The accommodation to be provided was to be similar to that presented in Baird's 1846 approved plan. Matheson's report stated that the condition and design of the existing building was so bad no satisfactory solution would be achieved by its renovation. This left the Commissioners in no doubt that the College should be relocated as soon as possible, especially as the 26.5 acres (10.6 hectares) occupied by the College had a much higher commercial value than an equal area 'in better localities'.⁸⁰

This led to the Commissioners producing a set of speculative figures covering the cost of relocating the University. These figures were based on the College selling their property for the best possible price and on current building and land values. It was estimated that a minimum of 10–15 acres (4–6 hectares) would be required for a new site. The 1846 figure of £84,000, the cost of the new university buildings at Woodlands, was taken at face value, without allowing for inflationary factors. Included in the assets of the University were the sale of the Hunterian coins, artefacts the University could not legally sell. The Commissioners visited several sites, of which the majority were in the west end of the City on the north side of the Clyde. The land values there were much higher, costing as much as £2500 per acre (per 0.40 hectare) due to the residential development going on in this area. To

the south of the river, land could be purchased for as little as £500 per acre (per 0.40 hectare); the Commissioners never seriously considered

this area to be suitable for the relocation of the University. The figures they produced were made up as follows:

TABLE 1

1860 Valuation of College and grounds	£48,000
Sale of house in High Street	£ 2200
Railway Company compensation plus interest	£15,000
Sale of Hunterian coins (estimated)	£20,000
	£85,200
New building on the north side of the River Clyde:	
1846 Cost of erecting new College	£84,000
Cost of College site 12 acres @ £2000 per acre (per 0.40 hectare)	24,000
	(£108,000)
Value of College property	85,200
Deficit	£ 22,800
New building on the south side of the River Clyde:	
1846 Cost of erecting new College	£84,000
Cost of College site 12 acres (4.8 hectares) @ £500 per acre (per 0.40 hectare)	£6000
	(£90,000)
Value of College property	£85,200
Deficit	£ 4800

These figures were seriously flawed as they did not give a true picture of the costs likely to be incurred.⁸¹

The prime objective was the removal of the University to a more salubrious site in the city. The Government's reluctance to commit themselves on the question of financial backing for new buildings, forced

the University authorities to look at ways and means of improving their present buildings. A committee was formed under the convenship of Dr Allen Thomson which reported to the Senate on 29 March 1861 making the following recommendations with estimated costs:⁸²

TABLE 2

Reading Room formed in Upper Hall of the Library plus additional access from Museum Court	£110
Additional presses and shelving	£ 88
New anatomy building in Principal's garden	£282
New Retiring Room in Hunterian Museum	£ 76
Conversion of store in Hunterian Museum to form classroom	£121
Conversion of back room in Hunterian Museum to form classroom	£ 90
	£768

Before making a final decision, the Senate laid the matter before the University Commissioners and the University Court.

The University Commission reported to the Government in June 1860 and, by April 1861, the Senate had still not been given a copy. The Principal wrote to the Home Secretary expressing the Senate's concern; Lord Elgin, the Lord Rector, resolved this problem after meeting with Sir G Cornwall Lewis, a Home Office official. Apparently, the Commissioners' report had been mislaid by the Government and a copy was now sent to the Principal.⁸³ The Senate discussed the report in July and another deputation was sent to London to urge the Government to implement the Commissioners' recommendations. The deputation reported to the Senate in August that they had been well received and, on the advice of Lord Elgin, had presented a copy of the Memorial to Lord Palmerston, the Prime Minister. The Memorial was in essence similar to the Memorial submitted to Lord Aberdeen in 1853.⁸⁴ Lord Palmerston finally met the deputation at Cambridge House and, as expected, his Lordship would not commit himself other than to agree that the University's submissions were worthy of consideration. Despite distributing further copies to the Chancellor of the Exchequer, Home Secretary and the Secretary of the Treasury, the deputation recognized that the Government would not make a positive decision during that session of Parliament. In October, the Principal and Andrew Bannatyne, Dean of the Faculty of Procurators and a member of the University Court, were again sent to London on a similar mission. The Principal was instructed to draft an advertisement inviting offers from landowners in the city who were prepared to sell ground, to determine on what terms the University could acquire a new site. This was to be done in readiness should the Government decide to provide funding for the new University buildings. Before travelling to London, the Principal and Bannatyne met with the Lord Advocate and Sir William Gibson

Craig, who was well suited to advise them on the best course of action to take when dealing with the Government: Sir William had served as a Lord of the Treasury from 1846 to 1852 and as MP for the City of Edinburgh between 1842 and 1852. The Lord Advocate suggested that funds might be loaned to the University from the Exchequer Loan Commissioners, using the existing University property as security.

On their arrival in London, William Gladstone, Chancellor of the Exchequer, was sent copies of the Commissioners' report and the Palmerston Memorials, as were the Principal Secretaries of State. Mr Arburthnot of the Treasury had already made it clear that the raising of a loan from the Exchequer Loan Commission was not a realistic option and it was not pursued further. The deputation met Gladstone on 23 November when he indicated he had studied their memorial but that it did not:

contain the details which were necessary to enable the government to come to any decision either on the important principle involved or on the practicability of the measure, and that these must be brought before him in writing.⁸⁵

The information required by the Government was as follows: in whom by law was the existing site and buildings vested? The same question was asked concerning the new site and buildings. The Government required the name of the building supervisor and the person making contractual payments. Information was also required on how it was proposed to raise the funding for such a large project, and finally who would be responsible for maintenance costs on completion of the building. Gladstone pointed out that the Government would not give a decision on the question of funding until a design for the new University buildings had been agreed and approved by the proper departments. This was perhaps the key to George Gilbert Scott's subsequent appointment as University architect. The Senate had no wish to repeat the failure of the Woodlands transfer

and, by appointing a well-known architect, whose designs would not be questioned as Baird's had been, early approvals were almost certainly ensured. Gladstone was of the opinion that 'the large and wealthy city of Glasgow should do something towards so great a public object by subscription';⁸⁶ he always favoured a policy of strict economy and probity when expending public money.

In December 1861, the New Buildings Committee prepared a statement for submission to the Government in response to the points raised. A new site was to be found on the north side of the River Clyde and to the west of the city centre. Baird's approved plans of 1848, revised by Blore and estimated to cost £85,200, were to be presented to Her Majesty's Treasury. The Senate made it clear they were not committed to accept this plan as their accommodation requirements had changed. The present site and buildings were vested in the *Senatus Academicus* and the new site and buildings could be vested in either the Crown or the Senate, a question that only the Government could determine. The superintendence and erection of the new buildings and expenditure during construction would be entrusted to Her Majesty's branch Office of Works in Scotland, subject to the Treasury. The charge and maintenance of the new buildings was also left to the discretion of the Government. In this area, the Senate were probably justified in anticipating that the buildings would be taken over by the Scottish branch of the Office of Works, bringing Glasgow in line with the Universities of St Andrews and Aberdeen. The estimated cost of a new site and buildings was shown as £115,000 less the £85,200 valuation of the existing property as shown in the University Commissioners' Report, leaving a shortfall of £30,000. The Senate made it clear that 'any deficit whatever may be its amount can be provided for only by the government'.⁸⁷ It was understood that an integral part of any move to a new site was that a new hospital was to be built close to the University. In 1846, £12,000 had been allowed

for a new hospital and site acquisition, but in this instance a new hospital had not been included in the current estimates. The Committee were confident that enough money could be raised by public subscription to meet any additional outlay. The Treasury replied in February 1862 that they had before them the memorial they had presented to the Palmerston Government. Their Lordships had already refused to commit public funds for the purpose of rebuilding College buildings, and were of the opinion that funding for such a project should be left to public enterprise or private generosity. The University Commissioners, in recommending the removal of the University to a new site, had expected the University to realize all its assets before any Government help could be sanctioned. The Government's reluctance to commit themselves was perhaps due to a mistrust of the figures presented by the Commissioners and University in support of their claim for assistance. Perhaps there was a deliberate policy to hide the true cost of removal from the Government until negotiations had been opened with them. Having taken account of the Commissioners' recommendation, the Treasury 'were willing to concede that for the immediate purpose in view, some aid may be contributed from public funds'.⁸⁸ It was made clear that the City of Glasgow would be expected to contribute to the cost of the College removal. Any funding provided by the Treasury would be limited 'to an equal sum to that which may be raised by private subscription'.⁸⁹ The £20,000 valuation of the Hunterian coins was removed from the equation by the Treasury and the estimated deficiency was recognized as being £42,800. The Treasury would recommend that Parliament approve £21,400 as the Government's contribution, but only when public subscriptions matched this figure. Further public money would be made available in the form of a loan with the valuation of the College buildings as security. This valuation was to be carried out by the Scottish branch of the Office of Works. However, before the 'assignment of that property to the public

as security for the debt', an Act of Parliament would be required.⁹⁰ The College authorities may have been encouraged by this development in their quest for Government aid, but it would be some time before the conditions imposed by the Treasury were met.

RENEWED RAILWAY COMPANIES' INTEREST IN THE EXISTING COLLEGE SITE

In December 1863 circumstances changed dramatically when notices from two independent railway companies were produced at a Senate meeting. The City of Glasgow Union Railway Company (CGURC) and the Glasgow & North British Railway Company had applied to Parliament to be allowed to take over part of or the whole site occupied by the College for the development of their railways. This was followed by a third notice from the Edinburgh & Glasgow Railway Company who wished to construct a branch-line from Maryhill to the harbour. There is no indication how the College authorities reacted to this sudden change of fortune. They had reason to be cautiously optimistic, realizing that the problem of raising enough capital to effect the removal of the College to a new site was now a distinct possibility. They were free to negotiate with the parties interested in acquiring their site because an Act had been passed earlier in the year which allowed the College site to be sold, the precedent having been set in August 1846 when the College Removal Act became law. The Senate served notices of dissent on the railway companies as neither had made any offer to the University with regard to the sale of their property. However, the University was prepared to withdraw the notices of dissent 'if circumstances shall be altered'.⁹¹

The Principal and Professors Allen Thomson, Blackburn, Skene and Kirk were appointed Commissioners by the Senate in April 1864. They were given full powers to proceed to London to represent before Parliament the

interests and rights of the College in respect of the Railway Bills; the Commissioners were also empowered to negotiate the purchase 'of the grounds and buildings belonging to the College and University by either Railway Company'.⁹² Shortly after their appointment, the Commissioners met in Glasgow with Mr A A McGrigor, a partner in the firm of Writers, McGrigor, Donald & Co, who represented the CGURC. McGrigor said the GGURC were prepared to offer in the region £80,000–82,000 for the College land and buildings. He personally thought £90,000 was a fair price and the initial offer was rejected as unsuitable. Before their Railway Bill reached the committee stage, the CGURC requested a further meeting with the Commissioners in London on 5 May. This meeting was inconclusive and another meeting was held later that day when the CGURC increased their offer to £100,000. The Commissioners accepted the offer on condition that the Treasury would confirm 'their agreement to recommend a Parliamentary Grant of £21,400'.⁹³

The Commissioners set about securing this grant, enlisting the help of the Lord Advocate, the MP for the City and other members of Parliament to help in achieving their objective. On the evening of 7 May 1864, the Principal wrote to Mr F Peel, Secretary of the Treasury, in which he informed him that:

a very favourable opportunity has just occurred for accomplishing this most important and desirable object without putting the Treasury to the inconvenience and trouble of the loan which they had agreed to give provided we can expect the Parliamentary Grant of £21,400 which my Lords had agreed to recommend ... The opportunity referred to is an offer on the part of the Promoters of the City of Glasgow Union Railway to pay £100,000 for the present College and lands which they mean to occupy as their Terminus and Station – a sum which may not be offered again ... The subjoined figures [shown in Table 3] will explain why the same Grant and Subscriptions are required now as when the subject was formerly before my

Lords ... the necessity arises from the cost of the new site having been taken at too low a cost by the Universities Commissioners and from them not having made any provision for the increased rate of building prices since the Estimates of 1846–9

were made up and from the inadequacy of these Estimates. The members of the Deputation from the University have suspended their acceptance of the terms offered by the Railway Company until the pleasure of My Lords be known.⁹⁴

TABLE 3

Price of new site – minimum	£ 32,000
Price of new College according to the plans of 1846–9 at the increased building rates per report of Mr Burnet, Architect	£103,000
Price of site and building of hospital to be connected with new College	£ 24,000
Expense of removing contents of Hunterian Museum, University Library and other moveables to new College	£ 3000
	<hr/> £162,000
In hand forfeit received from Glasgow and Airdrie Railway Company, originally £10,000 now with interest	£ 16,500
Offered by City of Glasgow Union Railway Company for present College and lands	£100,000
	£116,500
	<hr/> £ 45,000 ⁹⁵

Even at this early stage, the signs were that as the project developed the total expenditure would continue to increase. In anticipation of the City of Glasgow Union Railway Bill becoming law, the Senate had the College agent draw up a Draft Agreement with the CGURC and, after what had happened in 1846, it was thought expedient to submit it to the Lord Advocate for his professional opinion. He introduced a further clause in the Agreement for:

his superintendence of the application of the price on the part of the Crown, and for the price being deposited in the Bank in the joint names of the Crown Agent and College Factor to be drawn out as may be directed by you, and approved of by his Lordship.⁹⁶

This was thought to be a better arrangement ‘than the supervision of the Treasury as superinduced upon the measure of 1846’.⁹⁷ On 24 May, at a meeting in London, the Agreement was finally adjusted and executed by both parties. A few days later, on 27 May, the City of Glasgow Union Railway Bill was thrown out at the committee stage in the House of Commons

and negotiations between the College and the CGURC were immediately suspended. However, a successful Notice of Motion for recommitting the Bill allowed the Agreement to stand. In the interim the Glasgow & North British Railway Bill was about to go to committee stage and, if successful, the University could have opened negotiations with them for the sale of the College land and buildings.⁹⁸

On 23 May 1864, the Treasury indicated to Principal Barclay irritation at having been presented in 1862 with misleading figures based on the original 1846 estimates. When these proposals were examined by their Lordships:

they had every reason to suppose they had before them all the information required for a judgement on the question, and nothing was then said of the necessity for a revision.⁹⁹

The Treasury were naturally cautious in accepting a new set of figures which included, for the first time, £24,000 for a new hospital. In 1862, it had been stated that public subscriptions would fund the hospital, estimated at that time to cost £12,000. This latest proposal required



ILLUS 12 Ordnance Survey map of the west end of Glasgow, 1860 (from the Mitchell Library, Glasgow)

to be reconsidered but it was recognized that a hospital was a necessary adjunct to the College. If public subscriptions raised the money for the hospital plus any additional sums needed to meet any deficiency in the costs of the New College, their Lordships would propose a grant of £21,400 towards the building costs.

This offer was conditional on the College authorities expending all the money they had at their disposal being used towards the cost of the new College.¹⁰⁰ This decision allowed the College authorities to implement their agreement with the CGURC. Immediately, the University set up five main subcommittees to deal with the various aspects involved in the relocation of the College: the Sites Committee was responsible for finding a suitable location for the New College; the Finance Committee had power to deal with all matters connected

with the sale of the present buildings, grounds and the acquisition of the new site; the New Buildings and Hospital Committees were charged with providing lists of accommodation required; and the Subscription Committee's function was to arrange for a public appeal and the subsequent collection of subscriptions.¹⁰¹ Time was of the utmost importance as the University had to vacate their premises on 30 June 1869. The experiences of 1845–9 had shown that any undue delay could seriously jeopardize the whole project.

In October 1861, the Principal had advertised for proprietors of land who would be willing to sell ground to the University to allow their relocation to take place.¹⁰² It is not known if the offer received from the Gilmorehill Company in December 1863 was as a result of this appeal. Perhaps it was the University who

had opened negotiations independently with this company, whose schemes for a cemetery and a housing development had been in abeyance for more than a decade.¹⁰³ The Gilmorehill site was extensive, commanded good views to the south and was bounded on the east and south by the river Kelvin. The 1860 Ordnance Survey map of the west end of Glasgow shows the planning changes that had taken place in the area prior to the University's acquisition of Gilmorehill (illus 12). The Gilmorehill Company offered to sell approximately 43 acres (17.2 hectares) of land for £65,000, with a closing date for acceptance given as 1 April 1864. The Removal Committee reported on 14 April 1864 that they had had discussions with 'the Lord Provost and other official gentlemen connected with the Corporation' on the joint purchase of ground at Gilmorehill and Donaldshill.¹⁰⁴ Corporation officials had valued the land at £40,000 and a plan showing the apportionment of land between the University and the Town Council, prepared by John Burnet, a Glasgow architect, was submitted for examination. The Provost agreed to put the matter before the next meeting of the Town Council, recognizing that the closing date for offers was imminent. As the Removal Committee wanted to be certain of acquiring the site, they had negotiated a new closing date of 1 May. Consequently, the Removal Committee were instructed before the expiry of this date to 'conclude a purchase of both or either of these properties of Gilmorehill or Donaldshill' on the best terms possible.¹⁰⁵

The Town Council agreed to purchase the land not required for the new College or hospital for the use of the Corporation as a park. Should the site chosen for the hospital be unsuitable, the Council were to acquire an alternative site on adjacent land. They were given powers to employ: 'an authority to guide them in the laying out of these grounds in the interests of the University',¹⁰⁶ with responsibility for selecting the best site positions for the new College and hospital. Provost Kirkwood reported to the Removal Committee on 16 June that the lands

of Gilmorehill had been purchased at the asking price of £65,000 payable in instalments.¹⁰⁷

Some months later the adjacent lands of Donaldshill and Clayslaps were purchased for £16,000 and £17,400, respectively, totalling in all some 63 acres (25.20 hectares). The purchase price of £98,400 was far in excess of the original estimated cost of a new site. In May 1868, the Sites Committee reported that land surplus to the University's requirements had been sold to the Town Council for the sum of £48,490.18.7d plus 5% interest payable from the date the College made the original purchase. This reduced the actual cost of the University site further to £41,970.

The Sites Committee, with considerable foresight, had purchased ground in excess of their needs, which was a fairly safe investment, given the rapid development of the city in the mid-19th century. In addition to making a sound financial investment, the Committee were able to impose conditions on the sale of the surplus land, stipulating that: no buildings were to be built between the ground retained by the University and the River Kelvin except gatekeepers' lodges; buildings fronting the College grounds to the south were restricted in size to six apartments and were not to be elevationally inferior to the houses in Park Quadrant.¹⁰⁸

GEORGE GILBERT SCOTT APPOINTED ARCHITECT FOR THE NEW COLLEGE BUILDINGS

The Sites Committee, under the convenership of Dr Allen Thomson, met on 30 September 1864 when they further discussed their instruction to secure the services of a leading architect to design the new College buildings. The Baird/Blore approved design of 1849 was no longer relevant as it did not meet the increased accommodation requirements of the College. The Senate were aware of the impact the new College buildings would make and they wanted a building which would be commensurate with the

growing importance of the city and University. It was appreciated they had to act quickly in making an appointment, having only five years to commission and brief an architect and have satisfactory designs produced and built. The Sites Committee was faced with a dilemma – they could go ahead and appoint a well known architect on the strength of his reputation or opt for an architectural competition inviting a limited number of local architects to submit designs. Alternatively, a national competition would have attracted entries from the most talented architects in Britain. After discussion it was decided not to hold competitions on the grounds that ‘architects of the highest class were not likely to enter into such a competition’.¹⁰⁹ It was presumptuous of the Sites Committee to take this stance as this would have been one of the biggest competitions held in Britain since the competition for the Houses of Parliament. This is borne out in the response shown by architects who entered two competitions of comparable size – the Manchester Exchange 1866 and the Manchester Town Hall 1867 which attracted 52 and 136 submissions, respectively. The Sites Committee reasoned that an open competition would be time-consuming and would have necessitated the appointment of an assessor of some standing in the profession. It was felt that it would be in the University’s best interests, considering the short time at their disposal, if they went ahead and commissioned a reputable architect immediately. Although it is not known who initially proposed Scott as the most suitable candidate, Sites Committee Minutes reveal the discussion concerning the urgency of appointing an architect quickly, preferably one who would be able to produce a design quickly, and it was decided that:

From what they had heard of the eminent talent and taste of the London architect George Gilbert Scott, they were unanimously of the opinion that it was Scott who should be employed.¹¹⁰

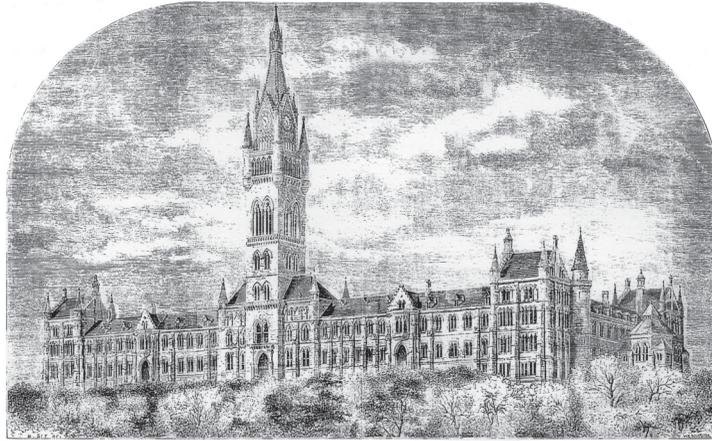
The Sites Committee agreed that, under the provisions of the College Removal Act, no time should be lost in appointing Scott. In response

to the inquiries made by the Sites Committee regarding Scott, the correspondence on the matter was discussed at their meeting held on 30 September 1864:

... the information therein contained was of so satisfactory character on the points referred to at former meetings, as to induce the Sub-committee to lay these communications before the Senate at its meeting today, to recommend the appointment of Mr Scott as architect for the new buildings as well as adviser as to the selection of the site and laying out of the College grounds.¹¹¹

The records do not reveal the source or the nature of the inquiries instigated by the Sites Committee, the Minutes only referring to correspondence on this subject. At the Senate meeting held on the same day, Dr Allen Thomson, convener of the New Buildings Committee, asked for Senate approval to offer the commission to Scott and to conclude an agreement with him should he accept. Thomson reported to the Senate on 13 October 1864 that Scott had accepted the commission and ‘would devote his best energies to give the University satisfaction’.¹¹² From the moment Scott accepted the commission there was never any doubt that the chosen architectural style for the University buildings would be anything other than Gothic Revival adapted to incorporate Scottish and Flemish details. In a letter to Thomson dated 25 December 1865, Scott wrote that:

The design is in the style of the early part of the fourteenth century, and the treatment of that style is an attempt to harmonize it in some degree with the National characteristics of Scottish domestic and secular architecture – This harmonizing process is rendered necessary by the fact we have few remains of Secular architecture in Scotland ... learned from works of later date though easily susceptible of being translated back into the earlier style. The early French examples when revived relatively to those in England afford much help as they have many features differing from the English works, but bearing strong resemblance to those which are characteristic of Scottish architecture though of a later period.¹¹³



GLASGOW UNIVERSITY BUILDINGS.—DESIGNED BY G. G. SCOTT, ARCHT.

ILLUS 13 Glasgow University perspective view from *The Illustrated London News*, 21 April 1866, Vol XLVIII, 393 (from the Mitchell Library, Glasgow)

The revived Gothic style was now being accepted as suitable for the growing number of important public buildings being built in Britain at this period. Scott visited Glasgow on 27–28 October 1864 when he inspected the site at Gilmorehill and the existing College buildings. He met the Removal Committee who provided him with a brief to allow sketch plans to be prepared as soon as possible. The New Buildings Committee had drawn up a statement in August 1864 comparing the existing College accommodation with that provided in Baird's proposed College at Woodlands in 1846. The professors were responsible for providing a detailed list of accommodation their departments required; they were to indicate lecture room sizes, ceiling heights, seating arrangements and any suggestions they might wish to make.¹¹⁴ It was pointed out that the lecture rooms of each Faculty should be grouped together with separate access to the quadrangles. Provision was to be made for future expansion plus the erection of 13 professors' houses. In December 1864, Scott wrote to Thomson thanking him for:

the papers sent to me, I have been through all the returns of the professors – and I shall now get about digesting them into practical form, I fear

that all the suggestions cannot be met but I will do all I can to secure the nearest possible number being acted upon.¹¹⁵

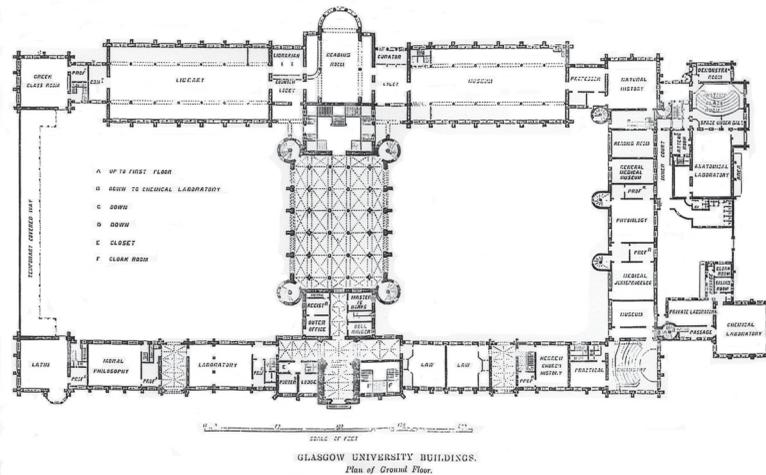
In March 1865, Scott presented sketch plans to the Senate, and Allen Thomson informed him in May that no great changes were envisaged. It was suggested that, if Scott had no objections, 'an illustrated view and description' should be published in the *Illustrated London News*; a perspective sketch and short article appeared in the magazine on 6 April 1866 (illus 13). It was hoped this might stimulate public interest and alumni of the University into making donations.¹¹⁶ Suggestions were made at this time to close the open side of the west quadrangle with an arcade or cloister.

Copies of Baird's 1846 drawings were given to Scott; a letter dated 7 November 1865 from Scott's office acknowledges receipt of the plans.¹¹⁷ Scott must have been influenced to a degree by Baird's layout but Scott's overall plan, in comparison with Baird's, required relatively minor changes. Scott's 540ft (163.59m) by 300ft (91.44m) rectangular south-facing block was much larger than Baird's design which measured 352ft (107.28m) by 242ft (73.75m). The increase in size was due

to the more generous accommodation now being provided (illus 14). Baird had produced a very workable plan and Scott would have recognized that there was no reason why it could not be adapted and used as the basis for his own layout. Scott, in fact, adhered more or less to Baird's lecture room groupings, as specified in the brief. The anatomy building was also sited outwith the main block on the eastern side. Baird's

second scheme is recalled in Scott's use of two quadrangles where, instead of housing the Hunterian Museum and Library in the central dividing range, it was now shown as housing the Great Hall. There is, however, no evidence to suggest that Scott was influenced by Baird's two quadrangle design as College buildings had a long history of being constructed around quadrangles. Scott may well have been trying to reflect the layout of the existing College buildings.

The western quadrangle was left open to facilitate future expansion as expressly instructed by the Removal Committee. There are similarities in the layouts and elevations of both Baird's and Scott's schemes, the massing of the buildings being very similar, despite the difference in style. Both architects positioned the main entrance under a central tower with two secondary entrances giving direct access to the quadrangles. The corner towers with projecting bartizan corner turrets were taken above the main roofline, and both designs, in many respects, were homogeneous (illus 15). The fundamental differences in the elevations are due to the increased length of the frontage and the



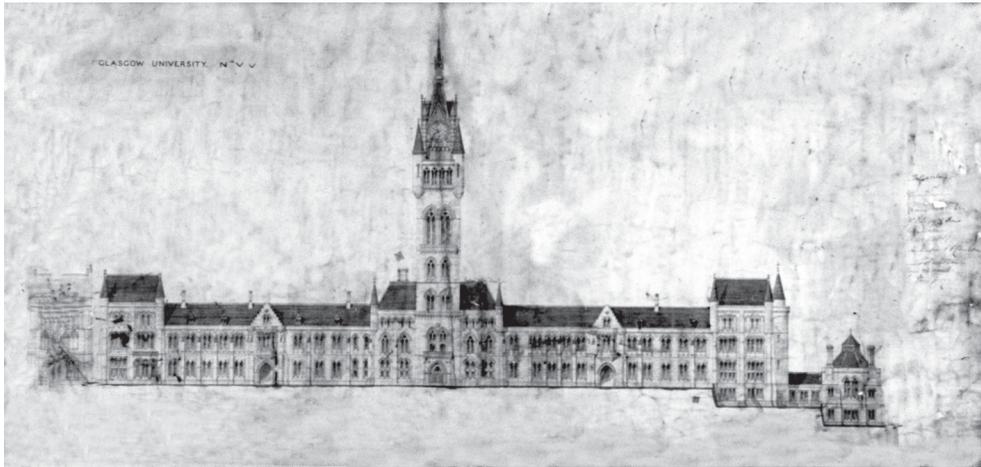
ILLUS 14 Glasgow University ground floor plan published in *The Builder*, 3 December 1870, Vol XXVIII, 966 (from the National Library)

architectural styles adopted by the architects. After May 1865 the professors were no longer solely responsible for vetting and approving drawings. An open meeting, presided over by Dean of Guild Archibald Orr Ewing of Ballikinrain, had been held with the Subscription Committee in the Fore-Hall of the University. The result was the formation of a Joint Subscription Committee that now included members of the public. This was followed, in November 1865, with the creation of a Joint Building Committee with non-academics sharing the responsibility for approving drawings.¹¹⁸ Finally, revised plans were approved on 23 March 1866, 18 months after Scott's appointment.¹¹⁹

CONSTRUCTION OF THE NEW UNIVERSITY BUILDINGS 1866–70

SITE EXPLORATION, REDUCTION IN LEVEL OF THE HILL AT GILMOREHILL AND THE ISSUING OF CONTRACTS

In July 1865, the University had been given a plan showing the position of old mine workings at Gilmorehill and Clayslaps; the Sites Committee



ILLUS 15 G G Scott's design, south elevation, October 1866 (from the Glasgow University Archives)

ordered an investigation. Trial bores were sunk, close to the line of the old workings and at the site of the new buildings.¹²⁰ Nothing was found other than stiff boulder clay at a depth of 84ft (25.59m) and the site was pronounced safe. A discovery was made which revealed a quantity of stone on Gilmorehill. J J Stevenson, a former pupil of Scott and a partner in the Glasgow firm of architects, Campbell Douglas, reported that the stone was laminated and not particularly good-looking but suitable for underground walling, and arrangements were made to open a quarry.¹²¹ On Scott's advice, a separate contract to reduce the level of the crest of Gilmorehill was arranged in June 1866 and a contract was agreed with Alexander & John Fail, contractors, for the sum of £1,198.13.6d. Two hundred men were employed during the contract period of two months. Approximately 10,000cu yd (7640cu m) of vegetable matter and 25,000cu yd (19,113cu m) of subsoil was removed; this meant that each week an average 4300cu yd (3285cu m) of material was removed.¹²² In June, Allen Thomson initiated proceedings by symbolically cutting the first sod. Nearby Gilmorehill House, originally built in 1800, was given a temporary reprieve, serving as site offices for the architect and contractors.

In March 1866, Scott and Dr Allen Thomson had discussed the siting of the professors' houses. Scott, though not entirely convinced, was of the opinion that the best position was to the north of the main building. He advised that the ground level of the houses should be 6ft (1.82m) below the finished level of the quadrangles. It was essential to maintain sufficient distance between the houses and the main building; to achieve this the main building required to be moved 30–40ft further south. The houses would be sited in two blocks facing each other 'separated by a distance of 112ft (34.16m) equal to the breadth of the central part of the main building'.¹²³ This would allow a better view of the University buildings from Hillhead and the north.

Later in the month, talks were held on the re-siting of the main building as Scott now felt that it should be sited on the summit of the hill as far to the east as possible. This was with a view to accommodating any future extension of the University buildings. It was considered impracticable to move the building further south and it was agreed that the professors' houses would be sited to the west of the main building, keeping in mind the possibility of future expansion.¹²⁴ In May 1867, the New Buildings Committee approved the final sketch plans of the

professors' houses. The average price of building houses of a reasonable standard in Glasgow at that period was 6d per cubic foot. With a cubic capacity of 80,000cu ft, the estimated cost per house was £2000 and, because the houses were double-fronted, an additional £200 was allowed. A further £2000 was estimated as necessary to cover extra building and decoration costs for the larger two house blocks, the residences of the Principal and Professor of Divinity. The houses were to be laid out in three blocks in the area now known as Professors' Square, some 15ft (4.57m) below the level of the main building. A two-house block was to be in line with the south front of the main building, a further block of seven houses formed the western boundary, with a similar four-house block to the north.

ECONOMIC PRESSURES BRING ABOUT
SUBDIVISION OF THE BUILDING INTO
AFFORDABLE UNITS ESSENTIAL TO THE
RUNNING OF THE UNIVERSITY

The Joint Buildings Committee, at their meeting on 23 March 1866, had discussed the updated estimated cost produced by Scott for the whole of the new buildings. The cost was calculated at 8d per cubic foot and was broken down as follows (Table 4).

Because the funds available to the College were estimated at £205,400, the New Buildings Committee decided to omit the Common Hall and restrict the height of the tower to the level of the main roof. Scott was instructed to prepare the specifications in such a way as to

allow contractors to price separately for the unbuilt portion of the tower.¹²⁵ In June 1866, the Hunterian Museum, arcades, cloisters and the ornamental chemical laboratory were added. The Committee felt that, although subscriptions were in excess of £80,000, there was no certainty the upward trend would continue. In view of the uncertain financial future, it was agreed that only areas essential to the running of the University should be built at this time.¹²⁶ Following the Committee's deliberations, the works were divided into the following sections: the buildings generally; the upper part of the tower and spire; the Great Museum and adjacent lobby; the octagonal laboratory at the south-east angle; and the adjacent one storey building. The Great Hall with adjacent staircase and offices were not to be included in this contract.

Tenders invited by the New Buildings Committee were returned on 2 October 1866 and opened in the presence of Mr Thomson, Scott's secretary, accompanied by Mr Lee and Mr Burlison, two of his surveyors. Tenders accepted from various contractors amounted to £191,020.15.6 ½d. The plans for the new College [working drawings] were approved and initialed in accordance with the fifth article of the agreement between the University, and the Promoters of the Bill for the City of Glasgow Union Railway Company dated 24 May 1864.¹²⁷ The largest single contractor was John Thompson of Peterborough who undertook to construct the shell of the main building for £116,071; his contract price of £144,000 included the spire,

TABLE 4

College building including Common Hall and Tower	£230,000
Levelling summit of Gilmorehill	£ 2000
Principal's house, 12 professors' houses plus contingencies	£ 24,000
Cost of site, roads and approaches and University grounds	£ 40,000
Expense of removing contents of Museum and Library	£ 4000
Above, exclusive of heating and ventilation and architect's commission	£ 20,000
Cost of building new hospital	£ 24,000
	£344,000

museum and octagonal laboratory. Local firms tendering for smaller contracts made up the balance of the overall figure. Contracts were not signed until 23 January 1867, and the first stone was laid on 4 April 1867.

The contract between John Thompson and the University quite clearly stated that:

should any dispute arise between the parties with regard to the meaning or intention of these presents in respect of the foresaid Drawings, Specifications, General Conditions or in any way relating to the premises the same shall be and are hereby submitted and referred to amiable decision, final Sentence and Degree Arbitral of the said George Gilbert Scott whom failing by his resignation or incapacity to act of John Burlison, Surveyor of London, whom failing as aforesaid John S Lee, Surveyor there as sole arbiter with all the powers competent to an Arbiter by the Law of Scotland by whose decision all parties shall be bound ... the award of the said arbiter shall be final and binding upon the parties.¹²⁸

With the appointment by Scott of William Conradi as his resident Clerk of Works, all supervisory and arbitrary powers were vested in Scott and his employees. This differed from 1846 when the College Removal Act had allocated the power to appoint arbiters to Her Majesty's Commission of Woods and Forests.

In 1868, the Senate applied pressure on the Treasury for additional government funding for a sum at least equal to the amount raised by public subscription. The Senate's submission was based on the precedent laid down in their Lordship's letter of 14 February 1862.¹²⁹ This led to Parliament voting an additional grant of £120,000 payable in instalments of £20,000 over a period of six years. In previous situations, such as at Marischal College in Aberdeen, no government money was paid until the Office of Works in Edinburgh had certified that all conditions had been met. It would appear that the same situation prevailed at Gilmorehill, although no official documentation has been found to substantiate that this was the case.

Private correspondence between Robert Matheson and James Robertson on the subject of the payment of the first instalment would suggest otherwise, as in Matheson's letter of 11 September 1868:

In consequence of your note requesting to know when the first instalment of £20,000 may be expected for the university Buildings – I applied privately for information – and I received a communication for which I make no doubt you may expect payment immediately. No delay took place here.¹³⁰

Matheson was making it clear that no blame for any delay could be attributed to his department.

THE GILMOREHILL BUILDING UNDER CONSTRUCTION

Site works began in November 1866 and the time was spent erecting workmens' huts, forming access roads and fitting up site offices in Gilmorehill House. Inclement weather seriously impeded progress, delaying the digging of foundations. Extensive foundations were required and these were excavated to an average depth of 17ft (5.18m), increasing to 24ft (7.31m) at the central section of the south front which supported the Tower. This area measured 76ft (23.15m) by 61ft (18.58m) and was backfilled with concrete to a depth of 6ft (1.82m). The tower walls were 12ft (3.65m) wide at the base, reducing to 7ft 6in (2.28m) at ground floor level.

By July 1867, the basement walls of the eastern and southern wings had almost reached ground level, with the central section of the south wing at DPC (damp proof course) level. This included forming ducting for the heating and ventilation system. A strike of 120 masons began on 31 May 1867 and, despite not having resolved their dispute with their employer, the men returned to work voluntarily in February 1868. Despite the strike, work progressed steadily and the Prince of Wales laid the foundation stone on 8 October 1868. By this time the number of

masons employed had increased to 230 and the effect of the strike on progress was not as serious as it might have been. The introduction of gas lighting in the masons' sheds had allowed the men not on strike to continue working full time during the winter months and in periods of bad weather, in preparing stones.¹³¹

The New Buildings Committee discussed various alterations with Scott required in the basement area as there was a need to provide additional store rooms for the museum and library, plus a students' meeting room. This required an area of 28ft (8.52m) by 30ft (9.14m) to be excavated between the Library and museum on the north wing with a ceiling height of 15ft (4.57m). Scott reasoned that this space would be more than adequate to provide the accommodation required. Additional external excavation was required to provide ventilation and light.¹³² A carriage entrance was also to be formed in the north wing, giving access to the main stair leading to the hall, library and museum. This was to be constructed in conjunction with an underground tunnel running from north to south under the central area of the building. This would allow fuel to be delivered to the furnace room without having to cross the quadrangles.

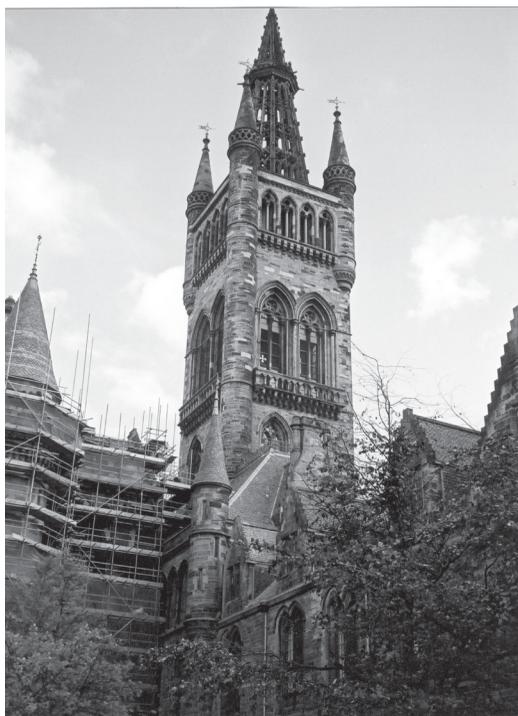
It was thought prudent, if funds allowed, to build the foundations of the central hall simultaneously with the tunnel and heating and ventilation ducts. The cost of erecting the hall foundations to ground floor level was estimated at £5000. The contractor was informed that, despite these additional works, no extension to the contract period would be granted.¹³³ However, Scott was not instructed to prepare plans, specifications and estimates for the central hall until February 1869 and work did not begin on the hall foundations until the following June.

By February 1868, the foundations were virtually completed with the exception of the central area of the north wing and the anatomical laboratory. The installation of floor joists over the basement area was delayed because two 42ft (12.79m) long cast iron beams failed when being

placed in position. At the library and north-west corner the walls had reached ground floor level as had the piers which supported the cast iron beams. These beams in turn supported the brick arches and cast iron columns. There were fears that the castings would be at some risk of damage if stored on site at Gilmorehill. To ensure this did not happen the Senate leased a piece of ground adjacent to the foundry where the material could be safely stored until required on site.¹³⁴ Further changes were instructed in the basement area to provide for two houses for the University Master of Works and the Assistant Keeper of the Museum. During 1868, the workforce increased dramatically, with 340 masons, 400 joiners and labourers at work on the building. The number rose again in 1869 to 1000, by which time roofing was in progress.

In July 1868, work began on the central tower which, at ground level, housed the deeply moulded arched main entrance giving access to a groined vestibule. Above the entrance at first floor level there is a stone balcony with pierced tracery that echoes the entrance to the old College. Each floor of the tower is differentiated by individual window styles and the top storey evolves into an ornate corbelled parapet with round turrets springing from three corners. The fourth turret on the north-west corner is a continuation of the round shaft that runs the full height of the tower (illus 16). The illustration published in *The Builder* in February 1870 shows the tower capped with a gabled spire and clock similar to Scott's design for his St Pancras Station complex in London. There is a close relationship between the Glasgow spire and that erected by Scott at Preston Town Hall 1862–7. Another of Scott's finest, but little known, works was his Rajabai Tower built over the Library of the University of Bombay which also reflects the Glasgow design. (The spire as envisaged by Scott was never built, the openwork spire which completed the tower in 1887 being designed by his son John Oldrid Scott.)

On 19 May 1871, the Joint Buildings and Finance Committees decided to suspend the



ILLUS 16 Glasgow University Tower with completed spire designed by J Oldrid Scott, 1887 (by author)

completion of the tower and spire due to a lack of money. Despite pleas to continue its construction, 'a sum not exceeding £500 was allowed for the construction of a temporary roof at the base of the proposed Spire'.¹³⁵ The completion of the tower was essential as the ventilation ducts, part of the heating and ventilation system, were an integral part of the tower's construction, which was completed by 1872. The structure of the building as a whole relied heavily on the use of malleable iron beams and columns. Scott believed that metallic construction was a great development as it allowed the architect greater freedom in planning large open spaces on all floors of a building. He considered iron was a medium capable of great beauty, as he demonstrated at Glasgow. In the 1860s, Scott was involved in the construction of Preston Town Hall 1862–7, the Albert Institute at Dundee 1865–7 and St Pancras Station Hotel

1866–76 as well as Glasgow University. All of these buildings share typical Scott features: decorated malleable iron beams and columns, marble inlay panels, stained glass and elaborate carvings. The main staircase at St Pancras and the configuration of the cast iron window frames are closely paralleled at Glasgow.

Excellent examples of Scott's use of ironwork can be seen in the library and Hunterian Museum situated in the north wing. They occupy the ground and first floors and are of similar size, measuring 129ft (39.31m) by 60ft (18.28m). In the Museum, plain clustered columns on the ground floor support the riveted decorated beams that carried the upper galleries, some spanning up to 40ft (12.19m). These columns terminate at first floor level where they are replaced by twin-paired, highly decorated single-shafted columns which, in turn, support the hammerbeam roof trusses. The capitals of the columns are decorated with stamped foliage, and the wrought iron infilling and detailing of the curved brackets at first floor level confirms Scott's claim that iron was capable of great beauty (illus 17). This is again evident in the Hunterian staircase where the stringers and the beams that support the landings are of malleable iron; alternate coloured marble infill panels conceal the web of these beams. The beautifully decorated wrought ironwork of the balustrade illustrates the successful marrying of structural iron and fine ironwork. The main stair leading to the Randolph and Bute Halls was constructed in a much simpler form where Scott again exposed the decorated metal stair stringer. A plain but elegant wrought iron balustrade gives this stair a much lighter appearance.

Despite steady progress during the construction period, the building programme did not meet the agreed completion date, and the CGURC agreed to a year's extension. This delayed the University taking formal possession of the lecture rooms, offices, laboratories, library and museum until 7 November 1870, at which time the old bells and the Lion and Unicorn staircase

were transferred from the old College. Some years later this staircase was relocated to the front against the west range. The provision of furniture and fittings and classroom equipment was not covered in the main contract. This was the responsibility of the Senate and resulted in ‘a considerable advance on the [University’s] Credit with the Bank of Scotland’.¹³⁶

In May 1871, Scott’s surveyor presented an abstract account listing the University’s outstanding liabilities for the consideration of the Joint Buildings Committee and Representatives of the Subscribers in order to discuss the current financial situation (Table 5).

Further interest payments due on the Gilmorehill Bonds and Bank interest raised the outstanding liabilities of the University to £32,727. This resulted in ‘the interim suspension of work not immediately necessary’,¹³⁷ effectively bringing building work to a halt.

The central hall, which was to separate the two quadrangles, was to be left in abeyance for the foreseeable future. It was not until June 1878 when two generous donations, made by the Marquis of Bute and Charles

Randolph, allowed the erection of the Randolph and Bute Halls to go ahead. The Marquis of Bute’s offer to erect the central hall was conditional on the cost not exceeding £45,000,



ILLUS 17 Hunterian Museum: curved malleable iron spandrils with decorative infill (by author)

TABLE 5

Debts and balance of infirmary contribution and subscription	£64,045
Completion of works including tower and spire	£26,337
Necessary additional works	£ 8,690
	£99,072
Deduct assets	£69,545
Deficit	£29,427

with the University bearing the cost of the substructure. These conditions were accepted and the Senate took on the responsibility to 'maintain and uphold the said Bute Hall as a common Hall for the University of Glasgow in good and sufficient repair in all time coming'.¹³⁸ The Bute Hall was to be built to the design of 'the late Sir George Gilbert Scott', who had died on 27 March 1878. The fitting out and furnishing of the new hall was not included in the bequest. The agreed contract price for the Bute Hall was £41,626, plus an additional £11,590 for the substructure, a further £3122 being allowed to cover the architect's fees. John Thompson of Peterborough, the Principal and professors signed the contract document on 6 and 14 August 1878. Failure to meet the completion date of 28 June 1883 would result in the contractor being fined £50 per week.¹³⁹ The Bute Hall, measuring

110ft (33.52m) by 70ft (21.33m), was built in conjunction with the Randolph Hall. The five-bay galleried hall is supported by the open rib vaulted undercroft. Externally, buttresses, traceried windows and circular towers define the bays (illus 18). Internally, tall elegant clustered columns support the first floor gallery and roof. (The recently redecorated Hall has been painted in the Bute colours and stencilled with gold fleur-de-lys as in the original scheme.) The finished building provided the University with a very fine centrepiece that fittingly completed the complex.

THE INSTALLATION OF THE VAN HECKE HEATING SYSTEM

The second major element in the construction of the University building was the installation of



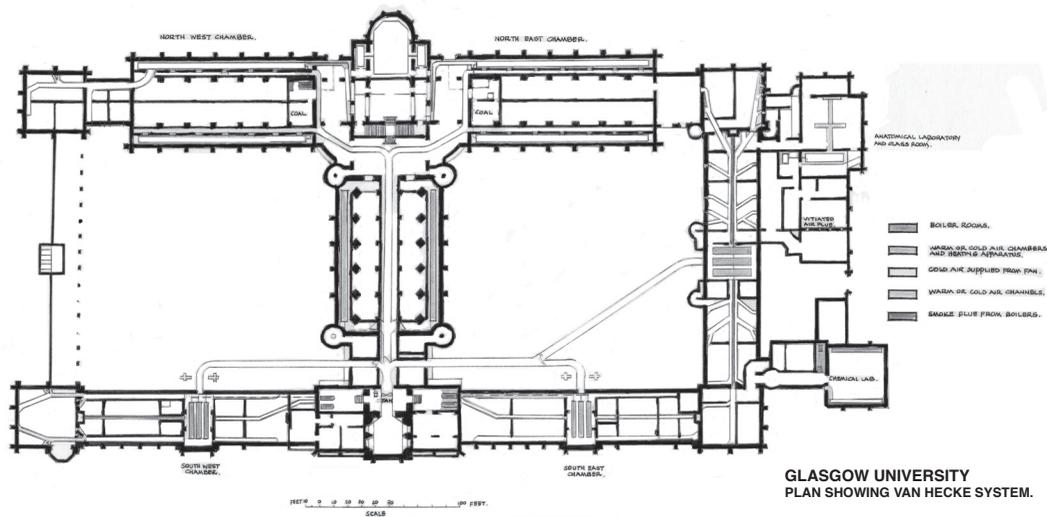
ILLUS 18 Bute Hall, west elevation (by author)

one of the earliest modern space heating systems in Scotland. The Senate realized that an essential priority in the functioning of the building was the provision of an adequate heating and ventilation installation. A sub-committee was appointed early in 1864 to investigate and recommend the most effective and efficient system then available. After a period of discussion and investigation, this sub-committee produced a performance specification of the type of system they thought appropriate:

1. Foul air to be removed from rooms through outlets placed as close to the source as possible, eg under desks or seats by means of ducting.
2. The total area of the outlet vents to be calculated at 28sq in per person.
3. The total area of openings to allow the introduction of fresh air should be double the opening area of the outlets.
4. Fresh air inlets were to be at high level and positioned around the circumference of the rooms.
5. Both hot and cold air was to be supplied to each classroom, and a means for mixing the hot and cold air was to be provided.
6. The total air supply to the classrooms should be 3/5cu ft per person per second.
7. The sectional area of the ducting exhausting foul air should be 1/20sq ft per person.
8. Outlets should be so placed that none of the foul air re-entered the building.
9. Fresh air was to be drawn down from an area where the air was always fresh.
10. Fresh air was to be drawn in by mechanical means.
11. Foul air extraction ducts should lead to exhausts placed in suitable positions, and provided with 'furnaces capable of being lighted, the area of the furnace grate being 15/1000sq ft per person'.
12. Fresh air to be heated by hot water tubes, the most efficient position for such tubes to be in vertical passages in which the air current ascends.¹⁴⁰

In March 1866, Scott had been instructed to prepare a report recommending the most suitable system available; he selected three engineers to submit designs. Subsequently, they were submitted to the sub-committee for their consideration. In January 1867 the Senate, along with Scott, discussed a report presented by Dr Rankine on the heating systems, when it was agreed the scheme presented by Wilson W Phipson of London met the sub-committee's specification.¹⁴¹ Acceptance was conditional on Scott being satisfied the system worked efficiently. Dr Thomson and Scott inspected a previous installation by Phipson¹⁴² at the Head Office of the National Provincial Bank in London and reported 'the system appeared to work perfectly'.¹⁴³

The van Hecke system installed at Glasgow required a plentiful supply of fresh air, air that was drawn down four 5ft (1.52m) by 3ft (0.91m) shafts which were 100ft (30.48m) high and built into the walls of the Tower terminating in a room well above the roof line. Openings into this room were at both high and low level, external air was admitted to the room through timber louvres fitted in the south-facing lancet windows; at this height, the air was thought to be free of all impurities. A 7ft 6in (2.28m) diameter fan powered by an eight-horsepower steam engine situated near the base of the tower sucked the air down the shafts. On reaching the basement the air was forced through a series of underground ducting leading to five distinct air chambers. The south-east and south-west chambers were located immediately under the gateways leading into the quadrangles, with a centrally placed chamber in the sub-basement of the east wing, the two remaining chambers being built along each side of the main walls of the library and museum. The fresh air was heated in each of these chambers by being forced over a series of 4in (100mm) diameter hot water pipes arranged in upright coils. These coils extended the length and breadth of the chamber, presenting the incoming air with a large area of exposed



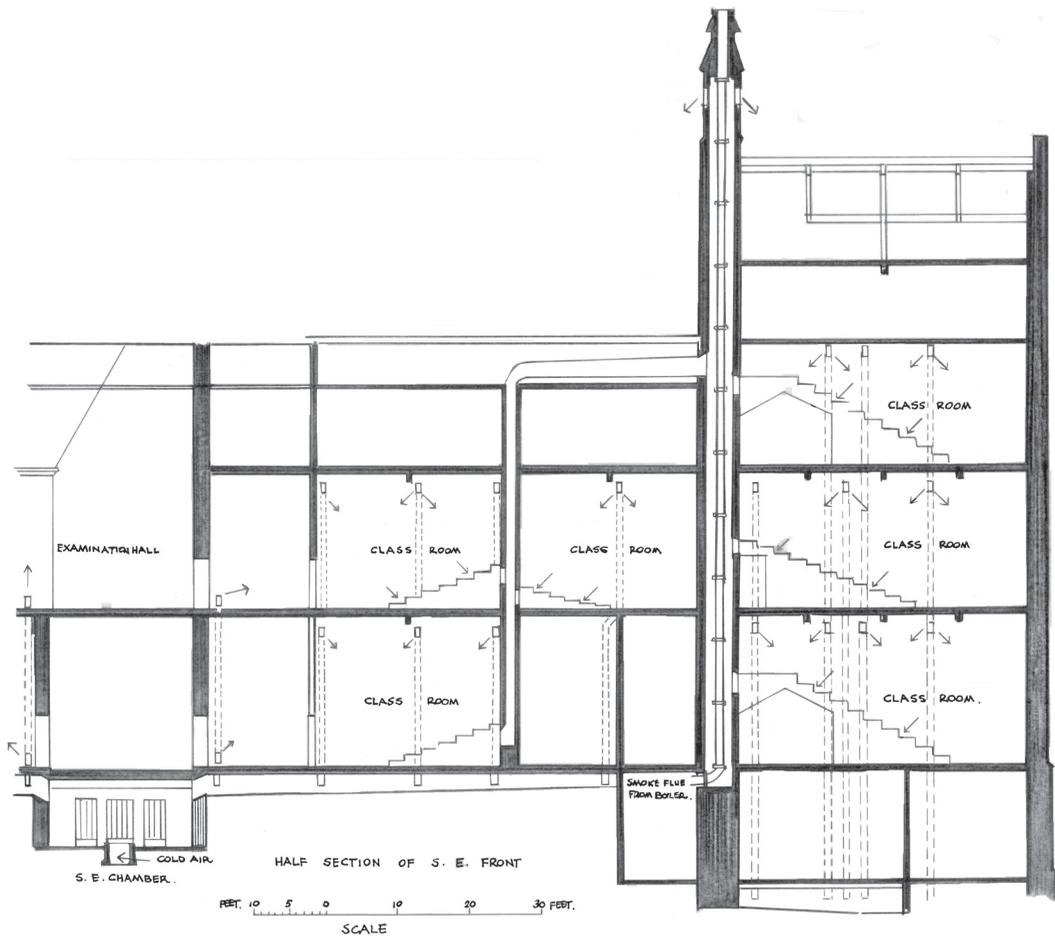
ILLUS 19 Plan of the van Hecke heating and ventilation system (from the Glasgow University Archives)

heating surface. Each chamber had its own independent hot water boiler and the heated air was dispersed by branch ducting to a series of vertical air shafts. At ground level, the shafts measured 18in (450mm) by 12in (300mm), reducing to 12in (300mm) by 12in (300mm) on the upper floors. The shafts were constructed within the wall thickness with openings in the horizontal channels at low level and with upper openings in the classrooms (illus 19 & 20).

Fresh air, with few exceptions, entered the classrooms at near ceiling height. The library and museum, because of their special functions, admitted fresh air at skirting level. Classroom inlets were designed to supply 750cu ft (21.23cu m) of air per person and to be capable of being regulated. Foul air was extracted from the classrooms by perforations in the risers of the seats, flowing into a secondary series of horizontal and vertical ducting. Three main vertical shafts, each 5ft (1.52m) deep by 3ft (910mm) wide and 96ft (29.25m) in height, were constructed for this purpose in the south-west, south-east and east end pavilions. An increase in the extraction power of these shafts was achieved by dissipating the waste

heat from the hot water and steam boilers. The waste heat was carried through a cast iron pipe 2ft 3in (680mm) in diameter at a maintained temperature of 25°, exhausting to the air above roof level through sympathetically designed stone terminals. The medical wing, in use from early morning, used gas lighting and required additional vents at ceiling level. No means of mechanical extraction was provided in the library and museum other than air flues in the walls discharging direct to the open air above roof level. Ventilation was provided in the anatomical department by the simple means of opening windows.¹⁴⁴

After the system had been installed, the flow of air drawn down the shafts by the fan to the heating chambers was monitored. It was found that wind speed and direction varied the amount of air provided, due perhaps in some measure to the location of the building on top of a hill. Calculations showed that 1,350,000cu ft (38,230cu m) of air per hour was the least amount to have been supplied. The total extent of the heating surface exposed to the cold air was 20,710sq ft (1950sq m), the five heating chambers averaged 4000sq ft (371sq m) with



ILLUS 20 Section through south-east front of building, showing heating and ventilation ducts (from the Glasgow University Archives)

a further 600sq ft (55sq m) in the chemical and anatomical laboratories. To maintain room temperatures at a steady 54° in a building of 2,035,000cu ft (57,620cu m), a constant supply of 1,800,000cu ft (50,973cu m) of fresh air was required per hour. Daily consumption of coal was 2tons 3cwt during an eight-hour period. This equates to the combined movement of 3,835,000cu ft (108,601cu m) of hot and cold air per hour. The operating staff consisted of one engineer and one stoker, with an additional stoker employed during winter. A sum of £500 was allowed per year for running and

maintenance costs; the installation including the ducting, vertical flues and extraction shafts was in the region of £17,000.¹⁴⁵

In December 1878, Phipson presented a paper to the Institute of Civil Engineers on his design for Glasgow University and concluded by stating:

... that this application has given general satisfaction and is probably the best arrangement that could have been adopted under the circumstances. The successful issue is certainly attributable in a great degree to the persevering labours of the eminent professors who formed the

ventilating committee and to their architect the late Sir George Gilbert Scott RA140.¹⁴⁶

During the discussion that followed, Phipson's design was strongly criticized. Professor James Thomson, Professor of Civil Engineering at the University, pointed out that in several of the large classrooms the ventilation was inadequate. In winter, the windows were left open to 'mitigate the evil odours'.¹⁴⁷ This was due to the failure of the implementation of clause 5 of the specification which required the cold and hot air be capable of being mixed. This appeared to be a particularly bad fault of the system as it was incapable of individual room control. At any one time the system could only provide simultaneous comfort in all the rooms served from the common source. A crowded lecture room which generated its own body heat received the same temperature as adjacent rooms, many of which may have been unoccupied, creating temperatures that became unbearable. The van Hecke system had been developed to heat hospitals that required a steady temperature in every room throughout the building, rather than for university buildings. The failure of the van Hecke system to meet the demand for variable temperatures when required in various parts of the building, suggests its installation was misapplied. There is no documentary evidence to suggest that Phipson was able to overcome this defect but, significantly, none of his subsequent contracts used this system.

Dr Allen Thomson agreed that the problems of heating large buildings had not yet been solved. He looked on the Glasgow installation very much as an experiment, and declined to condemn it out of hand. On the subject of classrooms, he had found that the system had provided a general degree of comfort, and the health of the students had been extremely good. In his view, the large crowded classrooms should be treated as a special case because the size of the inlet and extraction vents were not designed to deal with such large numbers. He found it regrettable that

this problem had manifested itself but he felt that the system should not be summarily condemned. As convener of the New Buildings Committee he was clearly on the defensive.

One of the major drawbacks was that by the time Phipson was commissioned to design the system the basement area was already under construction. This not only had a bearing on the design of the heating and ventilation system, it added considerably to the cost of the installation, a point Phipson emphasized in his paper, making it clear that:

the details concerning the levels, the directions of the air channels, and the position of the vertical shafts should be accurately laid down on the architects working drawings previous to the works being commenced.¹⁴⁸

From the failed move to Woodlands in 1849 it had taken the University authorities almost another 25 years to complete the move to the partially completed buildings at Gilmorehill. The purpose-built accommodation designed and built by George Gilbert Scott for £190,000 cost only half that of his St Pancras Station complex. The University of Glasgow now had a building of massive proportions and its completion signalled the end of the government programme of modernizing and rebuilding of Scottish universities.

CONCLUSION

These refurbished establishments remained the responsibility of the Scottish branch of the Office of Works under Matheson and his successor Walter Wood Robertson until 1889 when the Universities (Scotland) Act of that year transferred the maintenance and funding of University buildings from government control to the University Courts.

In both the failed 1845 scheme and the successful removal to Gilmorehill begun in 1863, the value of the University's existing site was critical. The size and scale of the new

University of Glasgow was such that nothing could have been achieved without the sale of their major asset. The generous donations made by the people of Glasgow provided the top-up funding which gave the financial stability so essential for the completion of the Glasgow project. The part played by John Baird and the University professors between 1845 and 1849 was equally important; it was through their combined efforts and the comments of Barry and Pugin that an acceptable plan form was evolved. Until 1851, the Lords of the Treasury had exercised almost arbitrary powers in determining the amount of government money spent on public buildings. They not only determined who qualified for government assistance, they also specified the allocation. After 1851, money was allocated annually in the estimates of the Office of Works and voted on in Parliament; despite this new arrangement, the Treasury still exercised a great deal of control. In reality, the funding provided by central government covered only 55–60% of the cost of rebuilding King's and Marischal Colleges in Aberdeen, and was as low as 35% at Glasgow. Any criticism of the approach adopted by successive governments in the 19th century has to be tempered by an understanding of the political ideology prevalent at that time. Central government expected that funding for such projects should be met in part by the residents in each locality.

The new buildings at Glasgow were significant examples of public architecture of the period and university architecture in particular. Specifically, the universities now needed classrooms rather than residential accommodation. The momentum for change to provide better accommodation was instigated by the University Senates, aided by the assistance of individuals acting in a purely private capacity or by holding some official position. The new Glasgow University buildings were also at the forefront of modern technology in having one of the first space heating systems to be installed in such a large building. A similar

type of system designed by Dr Boswell Reid was adapted by Sir Charles Barry and installed at The Palace of Westminster and St George's Hall Liverpool.

The re-modelled Scottish university buildings were in the forefront of the movement for change in university education, by providing suitable accommodation. The influence these buildings had, on the emergence of the essentially secular non-denominational English red brick universities, in mid-Victorian times, cannot be underrated. The only comparable new English university to have been built at this period was the much reduced version of William Wilkins' 1826 winning design for University College London, the plan of which certainly influenced the layout of Simpson's final scheme at Marischal College and Baird's first plan at Woodlands. The new red brick English universities of Manchester, Leeds and Liverpool differed from the single-campaign purpose-built Glasgow University in one very important respect: they were all developed piecemeal over a considerable period of time. University College London and University of Glasgow were in the vanguard of the changing concept of what a university should be, and they set the format for new university buildings for the rest of the century, a format embodied in George Gilbert Scott's University building at Gilmorehill, arguably the most important British university project of the century.

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- 31 GUA 26701, op cit, 20 March 1849, pp 63–7.
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- 33 GUA 26700, op cit, 13 November 1845, p 219.
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- 41 GUA 26701, op cit, 11 May 1847, p 136.
- 42 GUA 26700, op cit, 4 August 1847, p 349.
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- 109 GUA 21215, op cit, 30 September 1864, p 49.
- 110 GUA 21215, op cit, 13 September 1864, p 47.
- 111 GUA 21215, op cit, 30 September 1864, p 49.
- 112 GUA Sen1/1/7, op cit 13 October 1864, p 339.
- 113 GUA 17146, Removal Committee Minute Book No 1, 29 December 1865, pp 53–4.
- 114 GUA 17146, op cit, 10 August 1864, p 74.
- 115 GUA 943, letter from G G Scott to Professor Allen Thomson, 17 December 1864.
- 116 GUA 17146, op cit, 13 May 1865.
- 117 GUA 940, letter from A B Thomson [Scott's London Office] to Professor Allen Thomson, 17 December 1864.
- 118 GUA Sen1/1/8, op cit, 2 November 1865, p 40.
- 119 GUA 17146, op cit, 23 March 1866, p 92.
- 120 GUA 21215, op cit, 21 July 1865, p 59.
- 121 GUA 17146, op cit, 16 January 1866, p 55.
- 122 GUA 17146, op cit, 13 June 1866, p 111.
- 123 GUA 17146, op cit, 7 March 1866, p 87.
- 124 GUA 17146, op cit, 23 March 1866, p 92.
- 125 Ibid, p 93.
- 126 GUA 17146, op cit, 13 June 1866, p 116.
- 127 GUA 17146, op cit, 3 October 1866, p 122.
- 128 GUA 17146, op cit, 23 January 1867, p 251.
- 129 GUA Sen1/1/8, op cit, 13 February 1868, p 225.
- 130 GUA 6013, private correspondence between R Matheson and J Robertson, 11 September 1868.
- 131 GUA Sen1/1/8, op cit, 13 February 1868, p 232.
- 132 GUA 17146, op cit, 23 March 1867, p 256.
- 133 GUA 17146, op cit, 1 August 1867, p 271.
- 134 GUA Sen1/1/8, op cit, 13 February 1868, p 233.
- 135 GUA 17147, Removal Committee Book No 2, 19 May 1871, p 140.
- 136 GUA 17147, op cit, 3 May 1871, p 130.
- 137 GUA 17147, op cit, 12 May 1871, p 137.
- 138 GUA 17147, op cit, Minute of Agreement between the Senate and the Marquis of Bute, 28 June 1878, p 198.
- 139 Ibid, p 206.
- 140 Phipson, W W 1878 'Heating and ventilating, Glasgow University', *Institute of Civil Engineers' Minutes of Proceedings* 55, 142–72.
- 141 GUA 17146, op cit, 23 January 1867, p 244.
- 142 Phipson was educated in Brussels and Paris and, with the help of the Earl of Cowley, became a student at the Ecole des Ponts et Chaussées, Paris, in about 1857. During his time in Brussels he had spent a short time as a pupil of Dr van Hecke, who had developed an

efficient and economical method of heating and ventilating hospitals, systems he had installed successfully in France and Belgium. In 1859, Phipson returned to England and immediately established his own practice. He was to be a keen exponent of new technology and an enthusiastic advocate of both the van Hecke and the Prall high pressure hot water systems. The science of producing heating and ventilation schemes at this time was still in its infancy, despite the fact there was general agreement that the fetid atmosphere in theatres, hospitals and public buildings left much to be desired. Through the influence of his father, Phipson designed a combined heating and ventilation

system for the Piccadilly residence of the Baron Rothschild: 'the success of these works attracted the attention of some of the leading architects of the day, and several other important buildings were placed in his hands' (Barber, J M 1996 'W W Phipson, MICE: The Evolutionary Work of a Victorian Building Services Engineer' in a Paper delivered to CIBSE/ASHRAE Joint National Conference, 1996).

143 GUA Sen1/1/8, op cit, 24 January 1867, p 137.

144 Phipson, W W, op cit, pp 135–6.

145 Ibid, p 141.

146 Barber, J M, op cit, np.

147 Phipson, W W, op cit, pp 142 & 144.

148 Ibid, pp 129 & 143.