

The Use of Vertical Timber Cladding in Conjunction with the Platform Frame in Urban Scotland during the Sixteenth Century

by

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The cases for the use of timber as the principal structural material,¹ roof cladding material,² and wall cladding material,³ in high status domestic urban structures in Medieval and post-Medieval Scotland have already been made. This accepted, the available Scottish evidence does not sit comfortably with the perceived pattern of development of the English timber frame nor does the terminology correspond. The logical response to these profound differences is to suggest an independent tradition possibly stemming from early Celtic timber traditions but taking inspiration from northern European practices.

The history of the timber frame is not easy to establish but the Venerable Bede⁴ writing circa 730 AD describes three types of timber building. The first is block – or log – construction where round logs or roughly squared balks were set one upon another. The second is stave – or mast – construction where the timbers are arranged vertically as in the Norwegian stave churches. The third system Bede referred to as the ‘Scots system’.⁵ This system is not described but appears to be the system favoured by the Celtic tribe of Scots that had migrated from Ireland into the Southwest Highlands of modern Scotland and from which Scotland takes its name. It seems likely that this Scots system was based on the use of curved timbers to form couples, connected lengthwise with straight timbers and held together by woven brushwood. This type of construction survived in rural areas into the nineteenth and even early twentieth century but the best descriptions date from the eighteenth century when this class of building was known as a ‘creel’ (basket) house.⁶

Bruce Walker is an architect with a consuming interest in building usage, performance, structure and construction. His ethnographic approach, refusal to accept ‘factoids’, use of archaeological evidence and European parallels put him at odds with many accepted theories. His work is widely published.

Survivals of all three building systems can be found in archaeological reports, and types two and three in standing remains.

The timber frame appears in Scotland about the same time as Norman knights are invited into the country by the Scottish crown, which is contemporary with the Norman conquest of England. They obviously introduced European building techniques but where the English carpenters, over the centuries, became increasingly insular and detached from European influences the Scottish wrights continued to develop their craft in parallel with most northern European nations, which included the use of the 'platform frame'. Similarly the Scots eventually abandoned timber framed building in favour of masonry and brick again in parallel with most western European nations. It is clear that this change was a gradual one evolving from entirely timber-framed structures in the twelfth and thirteenth centuries, through timber superstructures over masonry undercrofts and lower floors to the entirely masonry-walled buildings of the eighteenth and nineteenth centuries.

The bulk of Scottish trade was with the Low Countries and direct parallels can be traced for most common building types between Scotland, Belgium and the Netherlands. To take a late example, Temminck Groll described the early masonry buildings in Utrecht⁷ and illustrated his findings in a series of block diagrams showing the massing and principal architectural features.⁸ Examples of all the medium and smaller sized house types illustrated by Groll can still be found in St Andrews, Fife, and more sporadically in the coastal burghs along the north side of the Firth of Forth from Crail in the east to Culross in the west.⁹ These were the ports most commonly used in the European trade. It has always been assumed that the influence was one way, that is, from the Low Countries to Scotland but this requires further scrutiny. This was the perceived situation with Burntisland Parish Church, Fife, an early square planned protestant preaching house. Two similar structures in Amsterdam were quoted as the inspiration but on investigation these were found to be considerably younger than the church at Burntisland.¹⁰ This does not necessarily mean that the Burntisland Parish Church was the inspiration for the two churches in Amsterdam, since there may be an unrecognised common antecedent, but it is a possibility.

Returning to timber framed buildings, the surviving Scottish evidence points to the widespread use of a form of 'platform frame' roofed with thatch or shingles¹¹ and clad with vertical timber boarding. This statement breaks with the traditional view that the Scottish buildings were mainly of masonry construction finished with harl, traditionally a single-skin lime render, and roofed with grey or blue slate. This was the situation in the eighteenth and nineteenth centuries but not before those dates. Much of the misconception stems from early building historians applying Standard English meanings to Old Scots building terms and completely misreading the situation. This was only brought to light through a series of archaeological reports for the Royal Castles and Palaces of Scotland under the care of Historic Scotland where blue slate is in evidence back to the beginning of the eighteenth century but not earlier, and grey slate to the beginning of the seventeenth century.¹² This encouraged a revisiting of the documentary evidence, particularly related to roof coverings, where the misinterpretations became obvious. The terminology had remained consistent even although the materials used had changed. The Scottish term

'skailzie' or 'skailie'¹³ had been applied from the medieval period onwards to 'shingles', but as grey slate began to be used as an alternative the term remained. Similarly as 'grey slate' gave way to 'blue' or true-slate the term transferred to the new material in the same way as some modern reporters talk of roofs being 'tiled with slate'. The term 'sclait' has been interpreted by the Scottish Language Dictionaries as 'slate for covering houses'¹⁴ but the word comes from the French 'esclat' – 'a splinter of wood' – suggesting that the original use was an alternative for 'skailie', that is, shingles. This seems all the more probable when the Scottish term for the wood-louse is 'sclater'.¹⁵

The proportion of masonry walls to timber walls increased in the seventeenth and eighteenth centuries. Much of this change was driven by the Dean of Guild in each individual burgh.¹⁶ The legislation took the form of fire regulations introduced after some spectacular fires in various major burghs.¹⁷ The completeness of the transformation may have stemmed from the wish to be seen as being as rich and prosperous as their southern neighbours and new trading partners, the English.

Before the Union of the Parliaments in 1707, the Scots had traded in Northern Europe, principally with the Dutch¹⁸ but they also had significant connections with Scandinavia,¹⁹ the Baltic States²⁰ and to a lesser extent with France, Portugal and Italy.²¹ With the Union allegiances and aspirations changed as opportunities arose in the developing British Empire. This brought a new prosperity to Scotland and a corresponding change in taste. It is the period leading up to this change that is to be considered in this paper.

Unfortunately, most of the buildings of this class were situated on the main streets in the commercial heart of the Scottish burghs. As the burghs expanded these central areas were redeveloped and the earlier domestic properties were replaced with civic, religious and commercial buildings. There are some exceptions to this general rule but there was still change. In the case of Stirling²² the new development occurred on the flat ground below the original town. Other towns such as Banff²³ and St Andrews²⁴ were prosperous in the sixteenth and seventeenth centuries but growth slowed down in the eighteenth and nineteenth centuries. This resulted in the reuse of old buildings rather than redevelopment. Even in these burghs the age of many of the structures is disguised by the Scottish practice of covering masonry with harl which tends to hide changes in the fenestration and signs of other change in the structure. Fortunately a number of these sixteenth-century structures were renovated in St Andrews in the 1960s and early 1970s by the Jack Fisher Partnership. Bill Jack, a principal in the firm who also acted as a historic buildings inspector and Ronald Cant, reader in Scottish History at the University of St Andrews and then chairman of the Historic Buildings Council of Scotland realised the potential of this concealed information and conspired to have the harl removed from the main façades of these particular structures. This exposed evidence of former openings, relieving arches, lintels, thresholds, sills, jambs, changes in style, texture and type of masonry and even the remains of former timber structure. Stone-by-stone surveys were prepared for these façades to allow interpretation to be undertaken. This was brought to the attention of some of the first urban archaeologists in Scotland and lectures were given referring to the former timber galleries that covered these façades. In general there was a lot of talk but no graphic reconstructions were

attempted. Probably those involved at the time felt that the evidence was so obvious that nothing further was required. The original group of urban archaeologists has been replaced by a new generation of highly professional archaeologists, often with specific skills that allow various aspects to be studied in much greater detail, but much of this has been achieved at the expense of basic knowledge of standing buildings. Some firms such as Headland Archaeology in Edinburgh have looked at the archaeological potential of thatch²⁵ others have concentrated on dendrochronology²⁶ or other specific disciplines, but all too often the discovery of a masonry wall in an excavation is automatically associated with a masonry superstructure yet all the visual and documentary evidence suggests that this was not the case.

Various bodies such as the Crawford Arts Centre and the St Andrews Museum have organised exhibitions of St Andrews buildings and attempted to find the Jack Fisher Partnership drawings. They approached Bill Jack's widow and the St Andrews University Archives Department and came to the conclusion that the drawings had been lost. The Jack Fisher Partnership was approached and they confirmed that the drawings had been sent to the University during a downsizing of the office premises and it was fairly obvious that if they were not in the Archives Department they were likely to have gone to the Estates Department as working documents. This proved to be the case.²⁷ Some drawings had also been sent to the Estate Manager for St Leonard's School.²⁸ St Leonard's School had originally been a college of the University and the Archives Department holds a manuscript sketch book drawn by John Oliphant in 1767²⁹ which shows the street façade of the former St Leonard's College and its relationship to the Pends: a fourteenth-century gatehouse to the Abbey precinct. After a detailed study of the Oliphant drawing and the north range of St Leonard's School, now known as the Priorsgate and Queen Mary's House it was possible to ascertain that the probable viewpoint for the sketch was the top floor, or even the roof, of either No. 3 or No. 5 South Street, which at the time was the Glass Inn where Johnson and Boswell dined on their first night out from Edinburgh on their tour of the Hebrides.³⁰

Dates for the buildings in St Andrews were obtained from an annotated plan of the burgh prepared by Professor R. B. Dingle of the Physics Department of the University about twenty years ago.³¹ This gave the date of the Pends as *circa* 1350 and the original St Leonard's College buildings as 1523. It was decided to attempt a graphic reconstruction of the original façade of the St Leonard's College buildings by combining the proportions of the Oliphant sketch with the dimensions of the Jack Fisher Partnership drawing. This proved to be remarkably successful and this approach was extended by locating sketches of buildings in other burghs that had similar features to other altered façades in St Andrews.

The search for the necessary graphic material to complete the exercise was far-reaching. The sources included: the drawings collection of the National Galleries of Scotland,³² the drawings and photographic collections of Edinburgh Central Library,³³ the terminology used in the timber trade and by timber workers in Scotland,³⁴ the National Monuments Record of Scotland,³⁵ various surveys of a 'land' in the Lawnmarket, Edinburgh carried out prior to its demolition,³⁶ fragments of timber cladding in the Royal Scottish Museum,³⁷ illustrated publications showing late survivals of timber framed and

timber clad buildings in Dundee,³⁸ Edinburgh,³⁹ Glasgow⁴⁰ and Stirling,⁴¹ and parallels to these Scottish structures in Belgium,⁴² France,⁴³ Germany,⁴⁴ the Netherlands,⁴⁵ the Alpine Region of Europe,⁴⁶ the Baltic States⁴⁷ and Scandinavia.⁴⁸ England was also targeted but where Scotland appears to have developed in parallel with most northern European countries there appears to be an almost unexplainable lack of common development with England or at least with England south of County Durham and Westmorland. Perhaps the problem lies in the way in which vernacular buildings have been studied in England. In the other countries of the British Isles vernacular building studies include all types of structure from temporary shelters for migrant workers through a whole range of structures such as caves, bee-hive cells, turf and earth-walled dwellings through to manor houses which in Ireland and Scotland tend to be towerhouses. C. F. Innocent shows that this range also existed in England yet for many years the English Vernacular Architecture Group tended to concentrate on the manor houses or other comparatively high status buildings. This approach may have been inherited from the old Ministry of Public Buildings and Works, where like most civil servants they liked data to be neatly categorised. A recent study of thatch in Scotland illustrates the vast range of materials and techniques still in use,⁴⁹ but Scotland seems to have far fewer thatched buildings than still exist in England, yet for a time English Heritage were only grant-aiding three types of thatch: reed, wheat-reed and long straw. Again, Innocent agreed with the situation recorded in Scotland. Similarly when questions were asked about timber-aisled-halls in England the answer from noted experts was that they did not exist. This was contradicted at the time by John Gall at the North of England Open-Air Museum⁵⁰ who was aware of genre drawings and paintings of this type of structure. Frank Atkinson and R. W. McDowall had written on this subject as early as 1959.⁵¹ They were discussing the Ancient Parish of Halifax and the surviving remains of timber-framed aisled-halls. Other aisled halls are known to exist such as Foulbridge, Yorkshire, but these appear to have been ignored by the 'experts' and it was almost fifty years later that Dave Stenning published a study of this type of structure in Essex.⁵² In his article he also criticises English building historians for concentrating on upper class structures and dispels the myth that all English carpentry was worked in oak. In other aspects of vernacular carpentry such as cruck types, terminology⁵³ and the use of parallelogram plans,⁵⁴ the northern English counties of Cumbria, Durham and Northumberland all have parallels to Scottish practice. In the case of terminology, the terms used in Scotland have been traced as far south as South Yorkshire⁵⁵ but that research is not yet complete.

THE PLATFORM FRAME (Figs 1 and 2)

The platform frame was constructed one storey at a time with a natural break in the structure at each platform or floor level. This gave the builders the opportunity to build off the tops of masonry ground floor walls and to work with much more manageable lengths of timber. The platform or floor was constructed on dwarf walls, or storey-height walls, as described above, then the completed platform was used as a deck on which to construct and erect a series of storey-height frames to support the next platform, and so on. The system had a great many advantages: in the efficient use of timber, the simplicity and speed of erection, the option to change the positions of verticals to suit

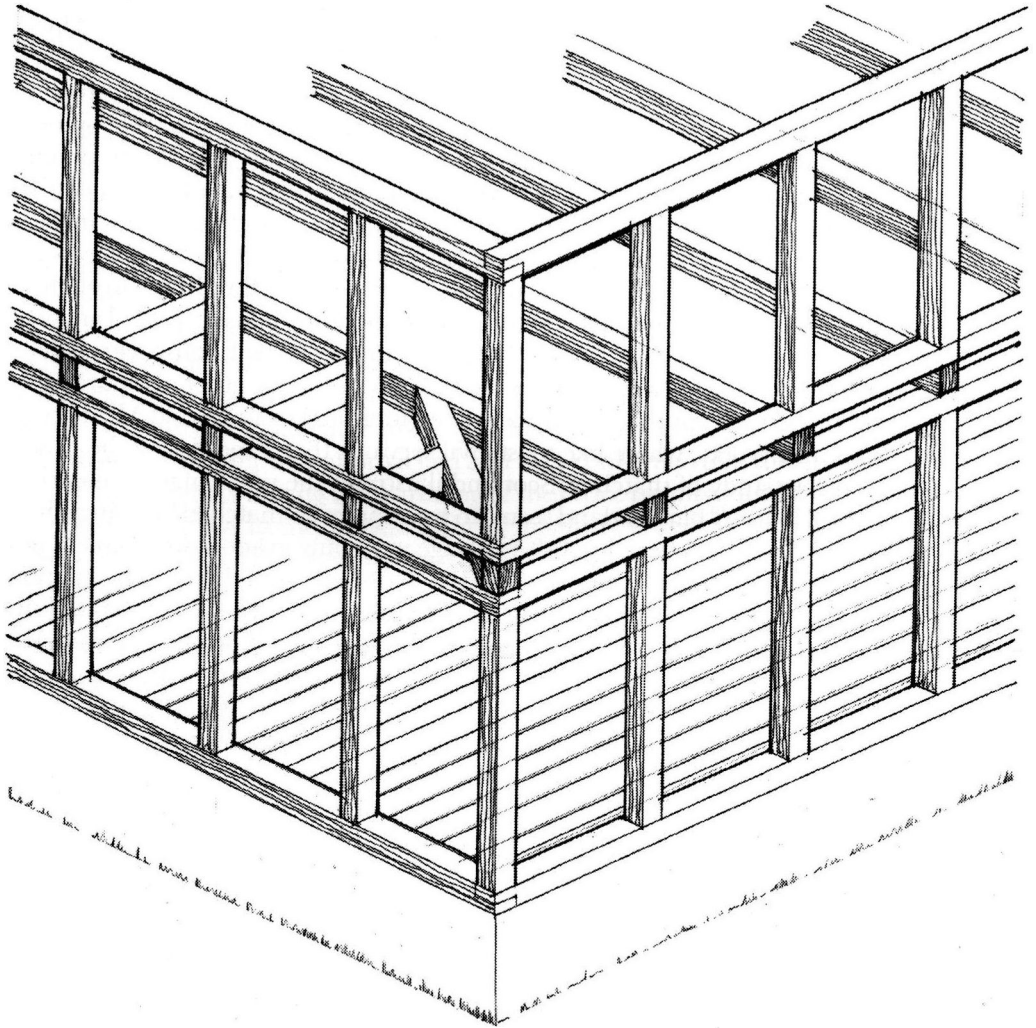


Figure 1

Platform Frame type construction after Gardner and Grodwohl.
Intermediate floor levels expressed by exposed joist ends on all four elevations

internal planning, and the potential to clad the building as it was being erected without the need for external scaffolding. The system also allowed for greater heights of building and higher ceilings, since the height of the building was not limited to the longest timber available. This was important in congested burghs such as Edinburgh where the housing at the end of the eighteenth century was considered to be the tallest in the world.

The use of the platform frame appears to have been widespread in those areas of Europe with a timber-frame tradition and appears to be a logical response to building

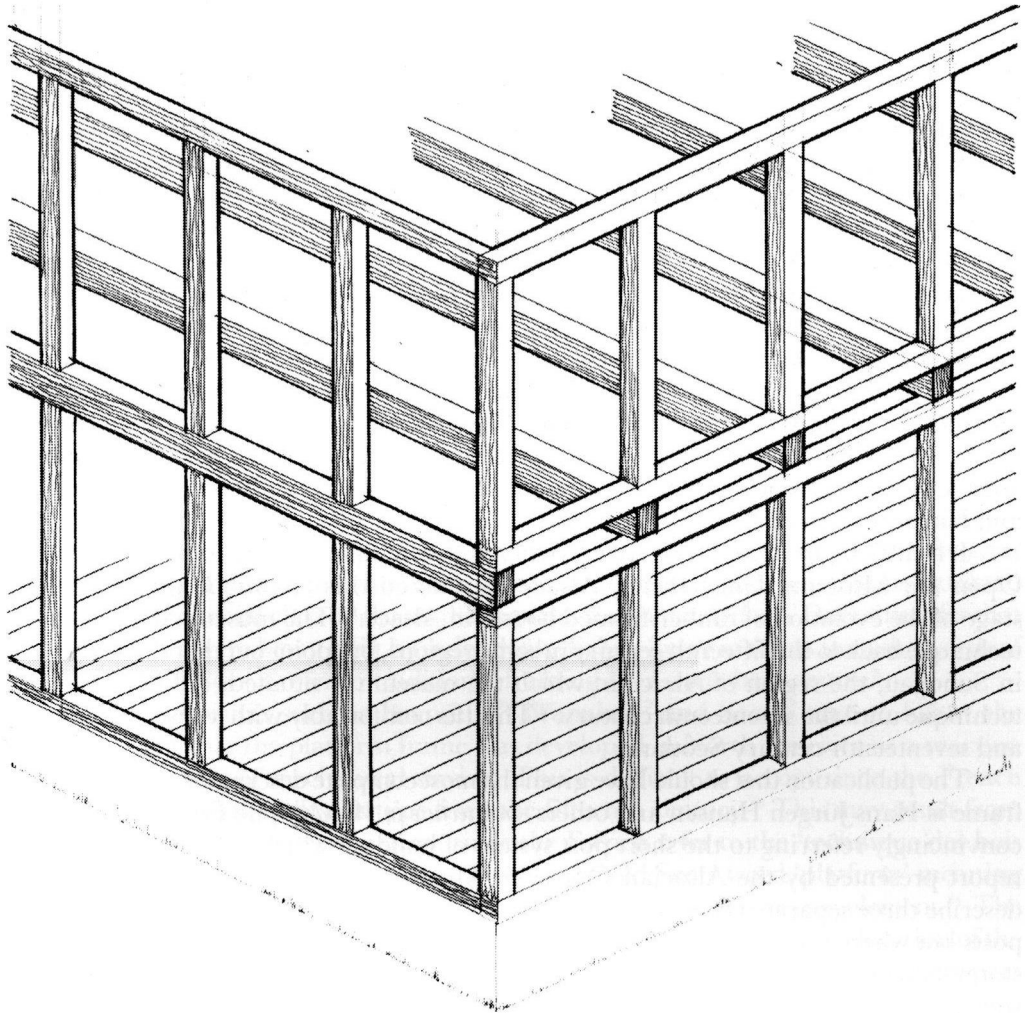


Figure 2

Platform Frame type construction after Engqvist.
Intermediate floor levels expressed by exposed joist ends on two elevations

higher structures and the better utilisation of the timber resources available to the builders. The major exception appears to be England, but it is difficult to establish whether this is the result of selective recording by English building historians or a genuine resistance to change by English carpenters.

Identification is often difficult due to the frame being encased in either timber cladding or a plaster render. This sometimes extends to the use of a decorative strap or cornice over the tell-tale double rail sandwiching the platform joist ends. In areas where

local custom leaves the frame exposed, the platform frame is easy to recognise even in touristic souvenir publications.

It has not been possible to carry out an exhaustive survey of European urban vernacular buildings but a survey of readily available published material proved sufficient to establish the presence of the technique in all the timber frame areas of Central and Northern Europe. Diagrams in Kjeld Keyser's publication on this type of structure in Copenhagen, Denmark⁵⁶ and Antoine Gardner and Marc Grodwohl's *la Maison Paysanne du Sundgau*, Alsace, France⁵⁷ show two different ways of forming the platform. In the Danish example the characteristic sandwich effect where the floor joists are positioned between the top rail of the lower frame and the bottom rail of the upper frame, only occurs on two elevations, the floor being expressed by the outer face of the outer joist on the others. The French example on the other hand uses a series of false joists to continue the sandwich effect on all four sides.⁵⁸ Examples of platform frames were located, by this method, in Belgium,⁵⁹ Denmark,⁶⁰ France,⁶¹ Germany,⁶² and Italy,⁶³ but the closest to the Scottish style of construction both in structural form and in the height of buildings erected were those from Aalborg,⁶⁴ Aarhus,⁶⁵ Copenhagen⁶⁶ and Randers⁶⁷ in Denmark and Halland, Sweden.⁶⁸

It is difficult to establish where and when the technique originated but the Alsacian Open Air Museum, Ungersheim, Alsace considered this technique to be the final stage of the evolution of timber-framed houses in Alsace.⁶⁹ The museum has traced the technique back to the fifteenth century in some regions, but point out that the carpenters in Sundgau, the region of Alsace in which the museum is situated, did not adopt the technique until the seventeenth century.⁷⁰ This fits comfortably with its use in sixteenth- and seventeenth-century Scotland.

The publication that should have given the most complete description of the platform frame is Hans Jürgen Hansen and others *Architecture in Wood*.⁷¹ The French entry starts convincingly referring to the short post system of building which corresponds with the report presented by the Alsacian Open Air Museum, Ungersheim,⁷² but goes on to describe three separate types of timber building under this general title. All utilise short posts but where the Alsacian Open Air Museum was using this expression to describe storey-height frames, each set up on a platform or floor, Hansen *et al* describe: single storey buildings with mass-earth walling between the posts, the use of short posts in the jettied development of the timber-frame, and briefly the platform frame as used in Alsace. They consider all three building types as 'short-frame' structures even although the first type is not a framed structure. The non-framed type of timber structure is described as a single storey type of building 'with no studs between the posts, the space being filled with a thick layer of cob'. Buildings of this type have comparatively recently been located in the Scottish Highlands, one on the South Lochness-side, Inverness-shire and the other in the High Street, Granton-on-Spey, Moray.⁷³

The use of short timbers to construct jettied façades is known in both Scotland and England and as Hansen *et al* claim, incorporates some very complex carpentry, with three types of jettied façade:⁷⁴ using principal beams, using common joists, using 'pigeatres' or 'pigearts' (brackets). All of this is interesting but misses the main point of the 'platform frame', which was ease and speed of erection. Certainly the ease of constructing a jetty

was one of the advantages of the platform-frame but it did lead to a blocking of light and ventilation in narrow streets, and towards the end of the fifteenth century jetties were banned in France. The ban does not appear to have been effective since houses with jetties were rebuilt in Troyes after the fire of 1524.⁷⁵ The increased height of building possible with both of the framed building techniques demanded a greater cross-sectional area of the timber forming the studs on the lower floors to support the greater weights being imposed. This could be achieved by increasing the number of studs on the lower floors as at No. 72 Rue de Beauvoisine and No. 50 Rue Saint Nicholas, Rouen and Maison Kammerzel, Strasbourg.

Occasionally the walls were constructed as a trellis, forming squares, as at Vitre, Brittany or as lozenges, as at Anjou, Touraine and Berry or even with a radial motif as in Picardy. In Alsace, where the tallest of those structures were to be found, the lower posts were increased in cross-sectional area.

The connection with France and with French building techniques is irrefutable. Copies of Philibert de Orme, *Traité l'architecture* (1561), P. le Muet, *Manière de bastir pour toutes sortes de Peronnes* (1623) and its English translation, *The Art of Fair Building* (1670), have been traced back to the libraries of Scottish aristocrats. These are books cited by Hansen *et al* in the section on French timber buildings. The English entry in Hansen *et al* presumably by J. T. Smith mentions stone-based timber-framed houses being constructed in England 'by a social class or classes that had not built them before'. Does this infer that platform frames were being built by individuals slightly lower in status than the Lords of the Manor? Or does it refer to traditional framing on a stone base course?

English historians such as Brunskill,⁷⁶ Bramwell⁷⁷ and Scott⁷⁸ tend to follow the American view that the platform frame was developed in North America as a reaction to the introduction of mechanical sawing. This is difficult to accept since the French have recorded buildings of this type from the fifteenth century.⁷⁹ This may result from confusion regarding the terminology, since the French refer to the 'technique des bois courts' (short posts)⁸⁰ whilst the Americans use the old Scots word 'platform' meaning a 'flat surface on a scaffold, floor or flat roof' as the main descriptive element.⁸¹ The technique was known in England as Damien Goodburn has provided an elevation of the timber framing of the west elevation of No. 13 Middle Temple Lane, London where part of the structure was a two storey timber frame over which a third storey was constructed as a 'platform frame'.⁸²

CLADDING AND FENESTRATION

The study of sixteenth-century buildings through images created in the eighteenth and nineteenth century is not infallible since there is no way of knowing the changes to the original form that may have taken place in the intervening centuries. What is remarkable is the number of very small windows surviving into the nineteenth century.

Descriptions such as that given of Perth by Pennant in 1772 do not help since there is no detail, Pennant stated: 'The two principal streets are remarkably fine: in some of the lesser ones are still to be seen a few wooden houses in the old style: but as they decay, the magistrates prohibit the rebuilding them in the same manner'.⁸³ According to a group of mid-nineteenth-century water colours of Perth, held by the National Monuments



Figure 3
 'Houses in Watergate, Perth 1854'
 showing two-storey timber-clad house
 Reproduced courtesy of RCAHMS

Record for Scotland, some of the houses in the Watergate were still clad with vertical boarding at that time (Fig. 3). These are remarkably similar in appearance to the houses and stores making up the Bryggens area of Bergen, Norway. I contacted the Bryggens Museum and found that the construction was not a platform frame but a form of log or block construction using interlocking joints at wall junctions to form a solid core to the house. Round this was constructed a post and beam structure forming narrow passageways similar to the to-faas on Scottish masonry structures. This illustrates a similar thought process but using different materials to form the solid core.

The external cladding in Scotland was normally of oak or Scots pine, applied vertically with tongued and grooved joints between the individual planks. The boarding was attached to the frame using 'trenails' or timber pegs thereby allowing tight joints without danger of splitting the boards. No surviving planks and trenails have been found in Scotland but a study of the evidence provided in genre paintings and drawings suggests a form of fixing commonly found in France⁸⁴ and Italy,⁸⁵ whereas the upper boards overlap the trenails holding the lower boards often at half-storey heights. John Hurd, conservator from Swaby, Lincolnshire reported on seeing a row of timber peg holes in the mid rail of a timber frame in Grantham, Lincolnshire that may have served this purpose.⁸⁶

The evidence from sketches and other illustrative material suggests that the survivals of the late eighteenth and early nineteenth centuries were clad with plain tongued-and-grooved vertical boarding but descriptions of some of the older buildings surviving in the Grassmarket and Cowgate, Edinburgh suggest they were richly carved. There is no clear indication of the nature of this carving but it appears to parallel the situation in France where, in the fifteenth century 'well-to-do patrons commissioned richly carved wooden panels' for the exterior of their houses⁸⁷ as an alternative to the pargetting popular in parts of England. Survivals of this class of carved panelling can still be found in Poland but normally the evidence is photographic. One of the richest examples was the Palace of the Emperors, Hildesheim, Germany where the lower storeys of the façade were covered with a series of classical heads, each within a wreath.⁸⁸ These were remarkably similar in



Figure 4

'Close, 77 Saltmarket, Glasgow' showing timber-clad dwellings (Fairbairn: 1885: XIV)

style to the Stirling Heads which adorned the ceiling of the King's Presence Chamber, Stirling Castle, Stirlingshire.⁸⁹ These carvings are made in three parts, dowelled together to form a square panel. Wear, changes in the leaves making up the wreaths at the joints between boards, traces of paint and so on suggest a chequered history. It has always been assumed that these defects were the result of abuse after they were removed from the castle, but there is the possibility that they adorned a timber building that predated the Palace Block and were re-used on the ceiling. The Stuart Kings certainly were aware of their use on façades as the Palace Block at Falkland Palace, Falkland, Fife has similar panels carved in masonry.⁹⁰ Both Palace Blocks date from the 1530s. This theory was quashed by the application of dendrochronology on both the ceiling joists of the Palace and the Stirling Heads in March 2004.⁹¹ The joists are a mixture of oak and pine with a felling date of 1539/40.⁹² The Stirling Heads are oak from two distinct areas of Poland. 'Baltic 1' is from south and east Poland. 'Baltic 2' is from the Gdansk area. The actual felling date cannot be established since finished work of this quality always has the sap wood removed completely. The outermost ring of the surviving timber is 1473 which, according to the Stirling Castle Heritage Group, is consistent with a felling date in the 1530s⁹³ but the removal of over fifty years growth seems excessive. Boarding of this



Figure 5
 'Morrison's Close, 117 High Street, Edinburgh. 1853'
 showing multi-storey timber-clad dwellings, some covered
 with a later lime render
 Reproduced courtesy of RCAHMS

type is consistent with the import of 'Estlandboard', the term used to describe oak boards from the Baltic suitable for panelling and wainscoting, as included in the Dundee Shipping Lists.⁹⁴

In addition to the Stirling Heads the Smith Institute, Stirling holds a series of fifteen medallion panels,⁹⁵ which according to local tradition once formed part of the wainscoting of the Palace of Stirling. These panels measure fourteen inches by 10½ inches (36-27 cms) and probably date from the early sixteenth century. These are of high quality and may be linked to a series of eight panels preserved in the Victoria and Albert Museum, London which appear to be the work of the same craftsman.⁹⁶ This requires further investigation since all have passed through a series of hands before being purchased by the respective museums.

The most surprising feature of the buildings depicted in the genre paintings and drawings is the smallness of the openings even in the eighteenth and nineteenth century. The surprise was possibly the result of being conditioned to

accept the continuous ranges of leaded lights in Tudor mansions. The small window openings appear in both masonry and timber clad walls and were usually unglazed but could be protected by an internal shutter.

Captain Burt, a cavalry officer travelling in Scotland in 1754 described a group of timber fronted houses in Inverness as follows: 'the middling sort of houses, as in other towns, are very low, and have generally a close wooden-staircase before the front. By one end of this you ascent, and in it above are small round oval holes, just big enough for the head to go through: and in summer, or when anything extraordinary happens in the street to exercise the curiosity of the inhabitants they look like so many people with their heads in the pillory'.⁹⁷ Edinburgh banned this type of window in 1661. The entry in the Burgh Records reads: 'there has been a commoun custome to cutt out round

shotts in the timber staires the lyk quherof is not to be seen un any other pairt of the world ... and quhilk may be a great daill more decentlie done with a little more expens in biggin of foir square windowes with brods ...' 'And do heirby prohibite and dischaige any builder whatsoinever to cutt out any round shotts in their buildings upon the hei straits or vennellis of this burgh in any tyme comeing under the paine of any hundredth pounds money'.⁹⁸

Ten typical forms of early windows are shown in Figure 6 (*top*). These comprise a simple opening large enough to allow an adult head to protrude as described. The Edinburgh Town Council was obviously wrong as this size of window appears all over Europe and of those checked Norwegian,⁹⁹ Alpine¹⁰⁰ and Czech¹⁰¹ window forms are of similar size. The change had obviously started earlier since on the 12 August 1531: 'Robert Grahame burges of the sais burgh' was granted permission 'till mak ane squair wyndo in the south part of his nether hall quhare the round one is now, of his land liand within this burgh, within the tenement of vinquhile Nichol Spethy on the est syd'.¹⁰²

A slightly more sophisticated form of window is represented by the single, or series of, timber shutter with small ventilation holes cut in the panel.¹⁰³ These vents can be smaller since the whole shutters can be opened in good weather or if the occupant wanted to see into the street. (Fig. 6 *third row*). The next level of sophistication was the use of fixed leaded-lights above solid shutters (Fig. 6 *fourth row*). This provided light without the discomfort of draughts.

The most modern types and probably later insertions were fixed or part-opening casements and the occasional

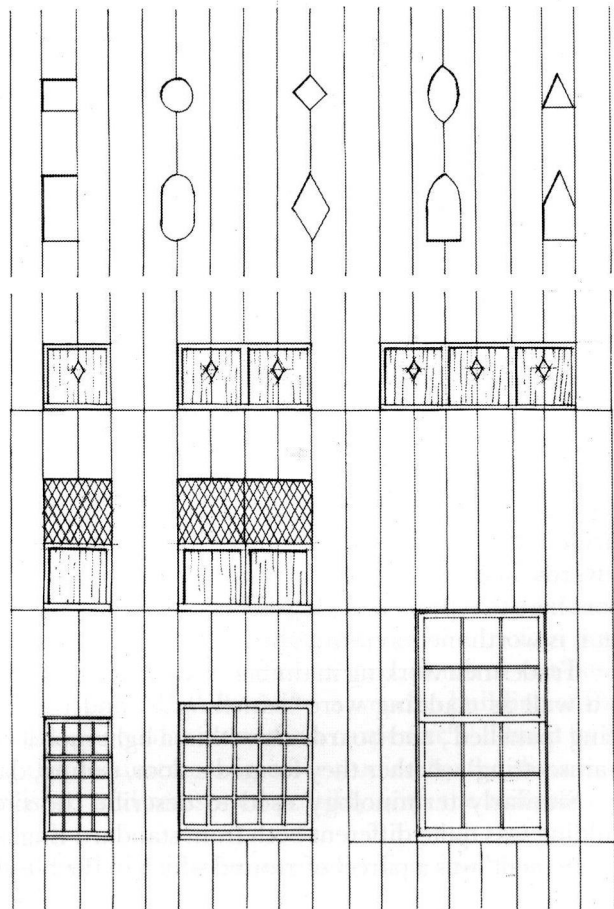


Figure 6
Sixteenth and seventeenth century Scottish window types
taken from old drawings and paintings
Top two rows – typical 'shotts'; Third row – timber shutters;
Fourth row – fixed leaded lights over timber shutters;
Fifth row – fixed sash and later case-and-sash windows

case-and-sash windows almost certainly of the late seventeenth century or later (Fig. 6 *fifth row*). This whole pattern contradicts the impression gained from Gordon of Rothiemay's *Map of Edinburgh*¹⁰⁴ where the windows appear to run in continuous bands across the façades of the 'forelands' on the north side of the Royal Mile. There are occasional examples of this type of façade, but even in the views of the Lawnmarket, High Street and Canongate of Edinburgh by other artists the continuous range of windows across the entire façade is unusual. It is unclear whether these façades were painted or decorated in any way. Examples in other European countries are often carved. The buildings may have been painted since Edward Topham, describing the burgh in 1774-5 states: 'The merchants here also, as in France, have the horrid custom of painting on the outside of their houses, the figure of the commodity which is to be sold within: which, in this place makes the oddest appearance you can conceive; for each story, perhaps, from the top to bottom, is chequered with ten thousand different forms and colours; that the whole resembles the stall of a fair, presenting, at one view, the goods of a variety of shops. They are likewise remarkably fond of glaring colours; as red, yellow and blue, on which the figures are painted in black. You would laugh to see a black quatern-loaf directly over a black full-trimmed periwig of a professor, with a Cheshire cheese, and a rich firkin of butter, displayed in black greatness under stays, petticoats and child bed linen'.¹⁰⁵ The description sounds as if it were part of a long-standing tradition since it appears to have a European origin and by this time the Union of the Parliaments has been in place for sixty-eight years. It is likely that Topham was overstating the amount of colour since none of the other travellers make note of this phenomenon. He also states 'The buildings are all of them of stone of a brown cast'¹⁰⁶ which was obviously not the case.

TERMINOLOGY

The study of the terminology in the timber trade in Scotland prior to the Union of the Parliaments showed that although the Scots used words that were the same or similar to words used in Standard English, the meanings were often quite different. There is no room here to repeat all the arguments put forward in a published article on this subject,¹⁰⁷ but it is worth mentioning a few examples that are relevant to the present study.

Tradesmen working in timber were 'wrights',¹⁰⁸ matched or random boards applied to a wall as cladding were 'panelling',¹⁰⁹ and the finished surface was described as being 'panelled', and boards set within a light mortice-and-tenon frame were known as 'wainscotting' whether they formed a door, ceiling, dado or a whole wall.¹¹⁰

Similarly terminology used to describe the site, nature and sub-division of a building was quite different both from standard English and from modern Scots usage. A 'tenement' was a parcel of ground which in the burghs equated to a burgess feu.¹¹¹ On the tenement stood a 'land', that is a building in multiple occupancy.¹¹² If there was more than one 'land' on a 'tenement' the 'land' facing the street was known as the 'foreland' and any others entered by a 'pend' or 'wynd' were 'back-lands'. A 'land' partly occupied as a town-house by a family with a 'seat' in the country or by an eminent person who did not own the property was known as a 'ludging'.¹¹³ A house on the other hand was any space occupied by a single person or a family and their servants (if any) be it part of a room, a whole room, a suite of rooms or an entire building.¹¹⁴

It has not been possible to locate a complete terminology of all the elements of a timber frame and its joints through the Scottish Language Dictionaries.¹¹⁵ This is not surprising since the lexicographers working on these dictionaries were led to believe that the bulk of Scottish buildings were of masonry construction. This accepted, the dictionaries contain more timber terms than masonry terms. The situation in England is very different since many of the generally accepted terms were collected by William of Worcester, or Botoner, who was born in Bristol in 1415 and travelled all over England recording objects of topographical interest, in terms of dimensions and numbers.¹¹⁶ This set a pattern which was followed up at an earlier date than the studies in Scotland. Without documentation of this type it will be extremely difficult to identify particular terms and their exact meaning. Since even common terms such as 'carpenter' or 'mortice and tenon' do not appear in the *Dictionary of the Older Scottish Tongue* it is often difficult to find a phrase from this early period which will unlock a particular term.

Oliver Rackham¹¹⁷ describes a similar situation in Ireland and in the process mentions an Irish term for the timber frame. He states: 'timber framing as in much of England, was confined to the cities. The Civil Survey (1654-1656) lists many such 'cage-work' houses, but as far as is known every one was demolished in the eighteenth and nineteenth centuries'. 'Cage-work' does not appear in the Scottish Language Dictionaries.

Damien Goodburn, archaeologist and timber construction expert at the Museum of London, has suggested the Northern European terms of 'taploch' and 'tapgett' for 'mortice' and 'tap' for 'tenon'. 'Tapgett' did not appear but 'taploch' was given as a 'flightly young girl'. Perhaps the term was quite common on building sites in Scotland but was transferred to the dictionary meaning as some crude sexual innuendo.¹¹⁸ Similar transferred terms are known in Danish and French.

The terms that have been recorded so far are as follows. FAA-BUIRD, FALL BOARD – window shutter.¹¹⁹ GARRO(U)N – a short wooden beam, from 1543 a nail for use with garrons (an alternative interpretation could be a 'trenail'), from 1616 a garron nail (heavy metal spike).¹²⁰ LAFT – an upper-storey.¹²¹ PLAT – a flat surface of any kind, a pavement, a landing of a stair, a balcony.¹²² PLATFORM(E) – a flat roof, a flat area on a scaffold.¹²³ RIGGIN the ridge of a roof, the roof, the materials of a roof, to put a roof on.¹²⁴ RUIF – a roof.¹²⁵ TO-FAA, TO FALL – a lean-to shed, porch or out-house built against a building, a penthouse.¹²⁶ TIMMER-LAND – a wooden building of flats or maisonettes. TIMMER WHITER – a jocular name for a carpenter.¹²⁷ This is by no means comprehensive as many of the documents originally studied by the dictionary lexicographers will have to be revisited and reassessed possibly with the assistance of building experts.

The remainder of the paper deals with the graphic reconstructions and the evidence and reasoning employed.

ST LEONARD'S COLLEGE, ST ANDREWS, FIFE

The Oliphant sketch (Fig. 7) of 1767¹²⁸ shows a two-and-a-half storey masonry range, with a series of two short and one long 'to-faas' (timber galleries) at first floor level. To the east the range abuts the Pends – the gatehouse to the monastic precinct.¹²⁹ The range faces north into South Street and the area taken up by the 'to-faas' and 'fore-stairs'

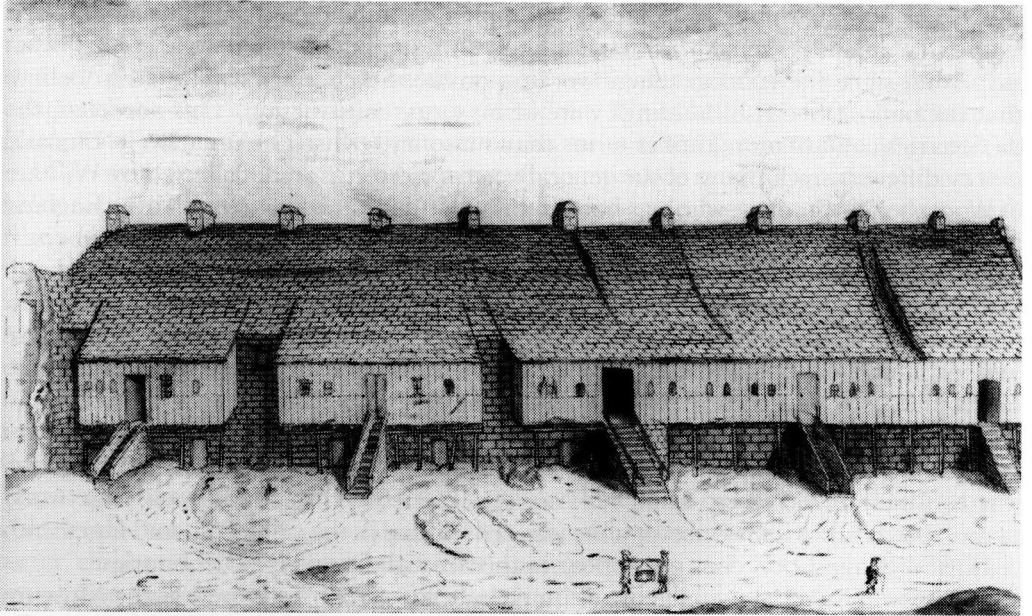


Figure 7

'St Leonard's College, St Andrews, Fife' by James Oliphant 1767

© St Andrews University Library

correspond to the area enclosed as garden or cobbled on the north side of the buildings known as Priorsgate and Queen Mary's House which are part of the present St Leonard's School for Girls. The current range is slightly shorter than that shown in the Oliphant sketch as there is the shell of a former building between the Pends and the east gable of Priorsgate. Both Priorsgate and Queen Mary's House are now three-storey structures but the line of the eaves of the two-and-a-half storey range is still visible on the Queen Mary's House façade.

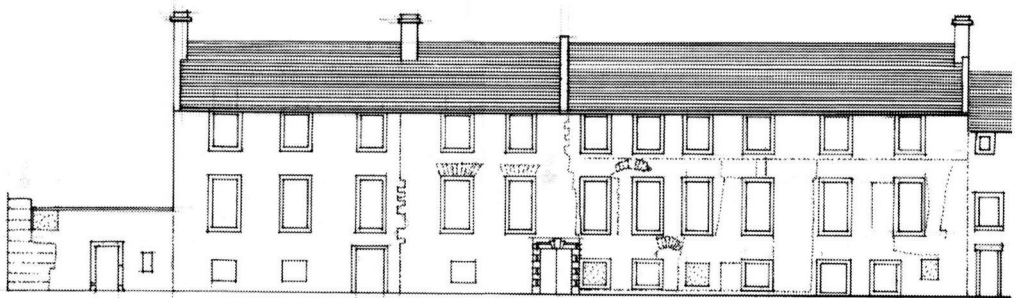


Figure 8

Existing masonry façade to Priorsgate and Queen Mary's House, South Street, St Andrews
formerly St Leonard's College

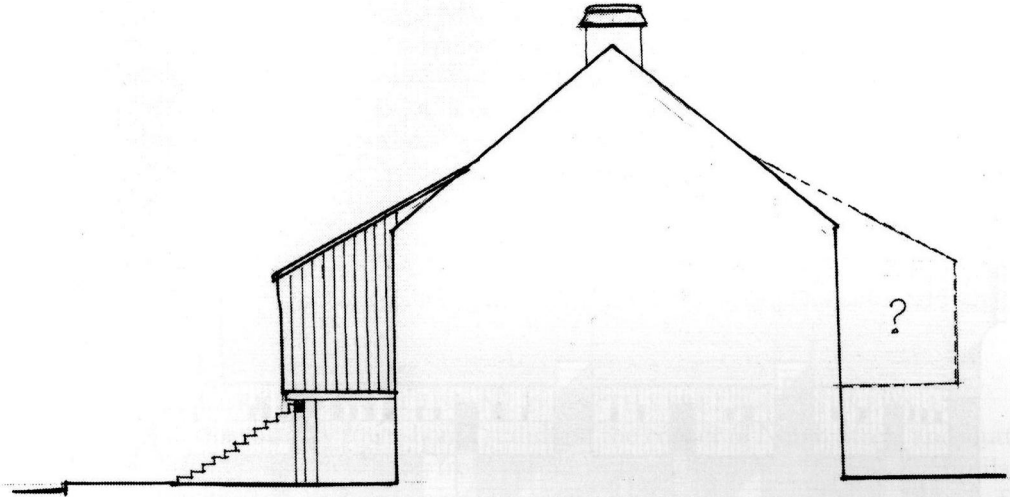


Figure 9

Reconstructed section through St Leonards's College, St Andrews based on Figures 7 and 8

The original structure dates from 1523 and the vaulted undercroft for the complete range still survives. The Priorsgate section was reconstructed between 1783 and 1788 whilst Queen Mary's House was restored in 1927.¹³⁰ It is unclear when the extra half storey of masonry was added. The most unusual feature of this range is that the pend which separates the two buildings at ground-level supports the mutual gable on its vault. The South Street end of the pend has a classical doorpiece dated to 1710.¹³¹ This would appear to be incorrect since in the Oliphant sketch the pend appears to be shielded by a masonry wall under the outer edge of the 'to-faa'. This can be seen to the right (west) of the left (easternmost) forestair of the long 'to-faa'. It is possible that the doorpiece was concealed in this way but very unlikely. The doorpiece is reminiscent of the work of William Adam (1689-1748), father of the Adam Brothers, who had an estate at Blairadam, Kilty, Fife. This particular style lasted for almost a hundred years in the Dundee area through the efforts of Samuel Bell, architect, in Dundee who was a great admirer of William Adam's Dundee tolbooth.¹³² Likewise the doorpiece may have been moved from another building when the Priorsgate was remodelled or during the renovation of Queen Mary's House. The Oliphant sketch shows the use of large slates on the roof. These are of a size and proportion that suggest grey slate from the Angus flagstone quarries to the north of the Firth of Tay. These are known on the east coast of Scotland as Carmyllie Flag, but were exported to Europe and elsewhere as Arbroath Stone.¹³³ If they date from the building of the College in 1523 this would be an early use of the material but consistent with its use in Dundee.¹³⁴

Two baulks of timber, now cut flush with the face of the masonry were found embedded in the wall of Queen Mary's House. A third may exist but some slastered cement pointing makes accurate identification impossible without damage to the pointing. All are on the same bed and at a height that suggests they were part of the support for

the 'to-faa' floor. Various blocked openings in the Queen Mary's House façade suggest doorways between the 'to-faa' and the main block.

One major feature that has disappeared is the ten chimney heads spaced along the length of the ridge. Unfortunately it has proved impossible to investigate the internal layout in sufficient depth to link these chimney heads with blocked hearths or former internal walls.

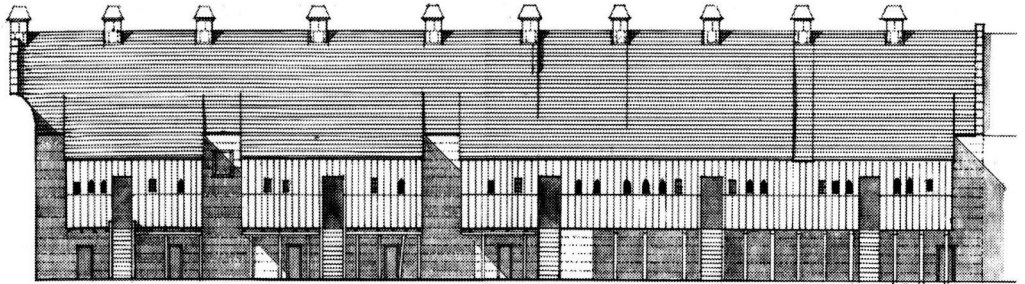


Figure 10

Reconstructed elevation of St Leonard's College, St Andrews based on Figures 7 to 9

The first attempt at a graphic reconstruction of the façade of St Leonard's College was based on an equal spacing of the chimneys along the ridge. This was unsuccessful as the second gallery, from the east, ended up looking compressed as if it had been constructed using much narrower boarding than the others. A second attempt adopting a one foot (30 cms) board width as a module was successful not only corresponding with the actual length of the existing structures but with the position of the barks, the former eaves line, and the thresholds of blocked openings (Fig. 10). The existing elevation on which this was imposed is shown in Figure 8, and a section through the range based on evidence provided in the Oliphant sketch, the existing range and practical pitches for grey slate roofs is shown in Figure 9. This illustrates that the slight difference in pitch between the main roof pitching to the eaves of the masonry structure and that sweeping onto the 'to-faa' roof produces the minimal shadow shown by Oliphant.

The sketch is, in fact, remarkably accurate in constructional detail and was probably set up as a parallel perspective using the 'to-faa' fronts in pure elevation and projecting the perspective, forward and backward, by eye.

Boards of a regular size of about twelve inches (30 cms) on face are normally pine, but as will be seen later could conceivably be oak. If pine they are likely or be radially cut boards with the cross grain at a tangent to the vertical edge. This is a similar section to the common pine board section found in northern Europe. See detail from the Houtenhuis, Begijnhof 34, Amsterdam, Netherlands which dates from the fourteenth century,¹³⁵ details from Skagan, Jutland, Denmark and the section from the timberland, Lawnmarket, Edinburgh.

The date of the removal of the 'to-faas' is not yet known but the start of the reconstruction of the Priorsgate in 1783 appears to be most likely, since it would affect all three 'to-faas'.

As far as the windows of the 'to-faas' are concerned it is difficult to know whether the sketch shows the original fenestration or whether one or two larger windows had been added. The square and lancet windows appear to be original but those showing sub-division of the openings may be later. There is no indication of whether any or all were glazed or had internal shutters.

Other ranges of 'to-faas' or timber fronted buildings must have lined the main streets of St Andrews in the sixteenth and seventeenth centuries but the only survivals known to have been photographed were at the back of the Royal George at the Shorehead. This structure comprised two taverns, a malt house and fisherman's stores before being converted into flats. These were condemned in 1935 and rebuilt as houses and flats in 1965-6.¹³⁶

THE ADMIRABLE CRICHTON'S HOUSE, No. 75 NORTH STREET, ST ANDREWS, FIFE

This prominent three-storey town-house stands on the corner of North Street and Butts Wynd. The vaulted undercroft dates from the mid-fifteenth century.¹³⁷ This is a similar date to the gatehouse to St Salvator's College,¹³⁸ on the other side of Butts Wynd, St Salvator's Collegiate Chapel¹³⁹ and No. 71 North Street which formerly belonged to the Knights of St John.¹⁴⁰

The surviving masonry superstructure to No. 75 North Street dates from 1540.¹⁴¹ The façade and stair tower are much altered and former doorways at ground first and second floor levels can be clearly seen in the east face of the stair tower and south face of the main block. This suggests 'to-faas' at first and second floor and an open arcade on the ground floor. The Scots called these arcades – 'piazzas'.¹⁴² In this part of Scotland, turnpike stair-towers were normally roofed with a cat-slide projection to the main roof. In this case the tower was heightened and finished with a semi-conical roof. This was a late addition to the structure the work being carried out in 1922.¹⁴³ It is likely that the original roof covering was replaced with blue slate at that time. The building had served as the men's student union from 1888.¹⁴⁴ The masonry of the stair tower and south façade was exposed during renovations carried out in the 1960s.¹⁴⁵ The ground floor is currently open to the public as a cafeteria.

A number of other buildings in St Andrews are built to the same basic concept of corner stair turret and galleried front. The closest example physically is No. 71 North Street, already mentioned, but there are no known illustrations showing any of these St Andrews buildings in their original form.

Two buildings of a similar type and date were known through illustrations. These were Garland's Land, Our Lady Gait, Dundee¹⁴⁶ and Kinnoull's Ludging, Watergate, Perth.¹⁴⁷

Garland's Land provides the best visual evidence in the form of a lithograph (Fig. 11) published in Lamb's *Dundee: Its Quaint and Historic Buildings*.¹⁴⁸ The building stood in what had been part of the market square which had been colonised by buildings in the sixteenth century. The stance was purchased in 1557 by John Ray, brewer and Garland's Land is described in 1560 as 'newly built by John Ray'.¹⁴⁹ The site plan shows the site on the corner of Our Lady Gait and Thorter Row, slightly to the west of the head of Crichton Street in the middle of the present day Nethergate. The building measured forty-five feet



Figure 11
 'Garland's Land, Our Lady Gait, Dundee'
 based on early nineteenth century drawing copied for Lamb: 1893: XXIII

by twenty-nine feet (13.5 m by 8.7 m) and was three storeys high. The lithograph shows two levels of 'to-faas' over a 'fore-booth'. According to Lamb the 'to-faas' were of a later date. This view corresponds with the perception at that time, that timber galleries were an added feature and not part of the original build, but this reasoning now looks suspect since all the accounts of tours of Scotland refer to timber frontages right back to the fourteenth century. The concept stems from an entry in the Burgh Records of Edinburgh where building owners were encouraged to purchase timber from the Boroughmuir on the promise that they could extend their properties seven feet into the main street. What the record fails to state is whether the original frontages were of timber or masonry.

Lamb may have been correct if he was including the 'fore-booth' as a 'to-faa' since this is one of the very few visual representations of a booth built under the projection of either a 'to-faa' or a 'loft'. A similar 'fore-booth' containing the carcass of an ox is shown to the extreme right of another of Oliphant's sketches, that of 'The Tolbooth of St Andrews'.¹⁵⁰ The lines of the cladding on the front of the 'to-faa' over this booth can also be seen.

Garland's Land was demolished in 1812, too early for Lamb to recall the demolition. The lithograph in his publication was prepared from an original sketch then in the possession of the Garland family,¹⁵¹ but this sketch is now missing.

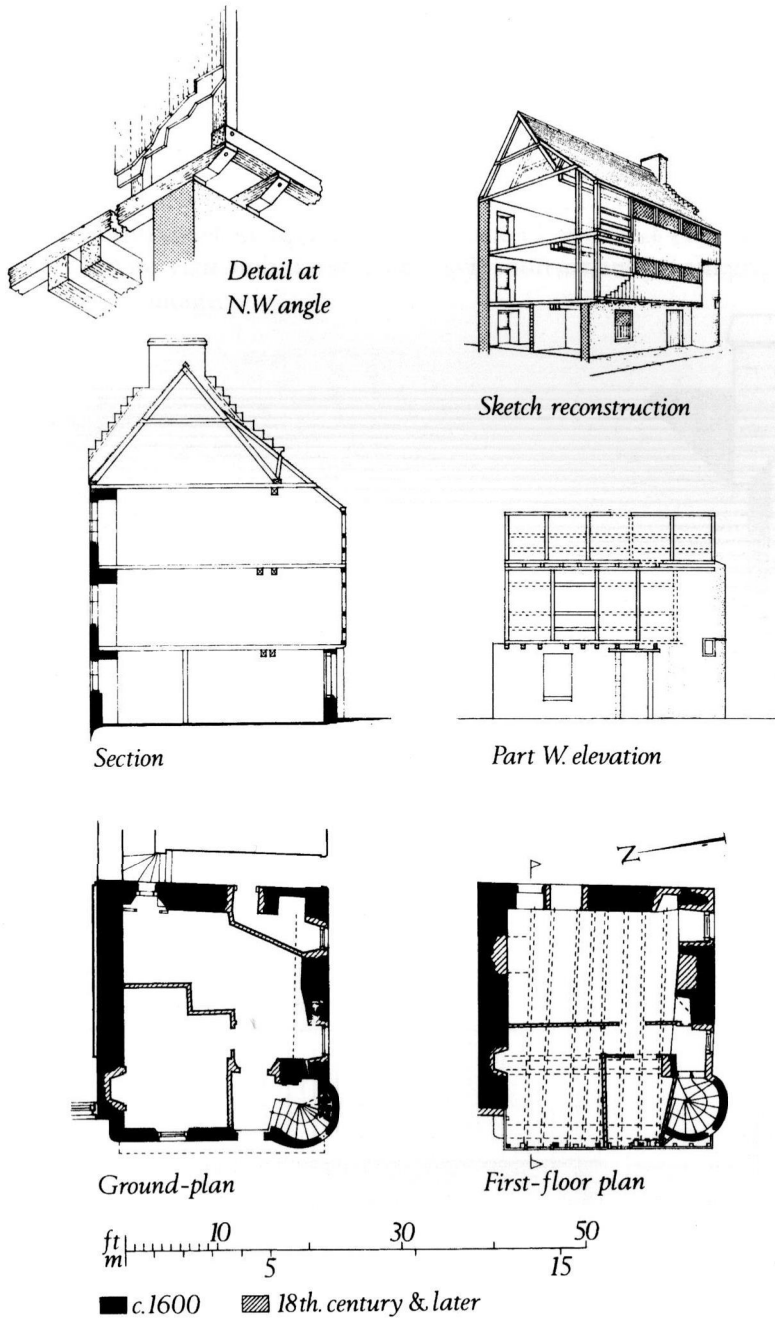


Figure 12

'Kinnoull Lodging, Watergate, Perth 1965' Survey and reconstruction by Geoffrey Hay
© RCAHMS from the Geoffrey Hay Collection

The most striking feature of the drawing was the smallness of the windows. These correspond very closely with the fenestration recorded at St Leonard's College, St Andrews¹⁵² and tend to contradict the impression given by Gordon of Rothiemay in his Map of Edinburgh 1647 where the buildings on the north side of the Royal Mile are depicted with continuous bands of glazing running across the face of the buildings on every floor above ground level as is known to have been the case with Alan Ramsay's House in the High Street and the Excise House in the Netherbow.¹⁵³

The Garland's Land/St Leonard's College type of fenestration was adopted for one of the graphic reconstructions (Fig. 13). The window sizes on the stair tower being

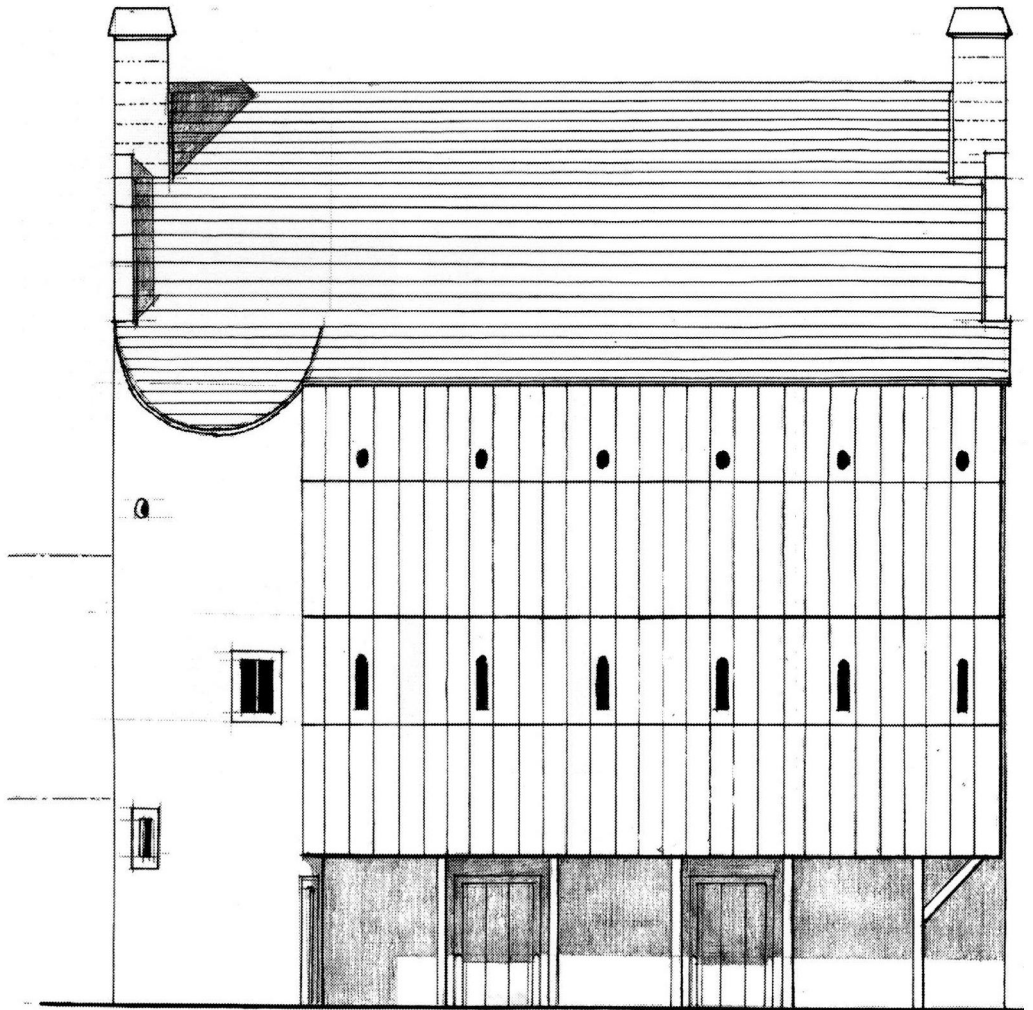


Figure 13

'The Admirable Crichton's House' No. 77 North Street, St Andrews.
Reconstruction with 'shot' type windows based on those in the former turnpike stair

adopted at that particular level. The boarding depicted was again one foot wide on face to correspond with the proportions of the boards illustrated in the two contemporary illustrations. Obviously this is not conclusive evidence and the other extreme would be to create a reconstruction based on the Gordon of Rothiemay Map and a reconstruction of Kinnoull's Ludging, Perth prepared by the RCAHMS¹⁵⁴ (Figs 12 and 14).

Kinnoull's Ludging had a similar background to Garland's Land in that it was again built as the result of market colonisation. The original market in Perth stretched from the High Street in the north to South Street in the south and from the river frontage to the east to approximately the line of the Meal Vennel to the west. Watergate was formed parallel to the river frontage.

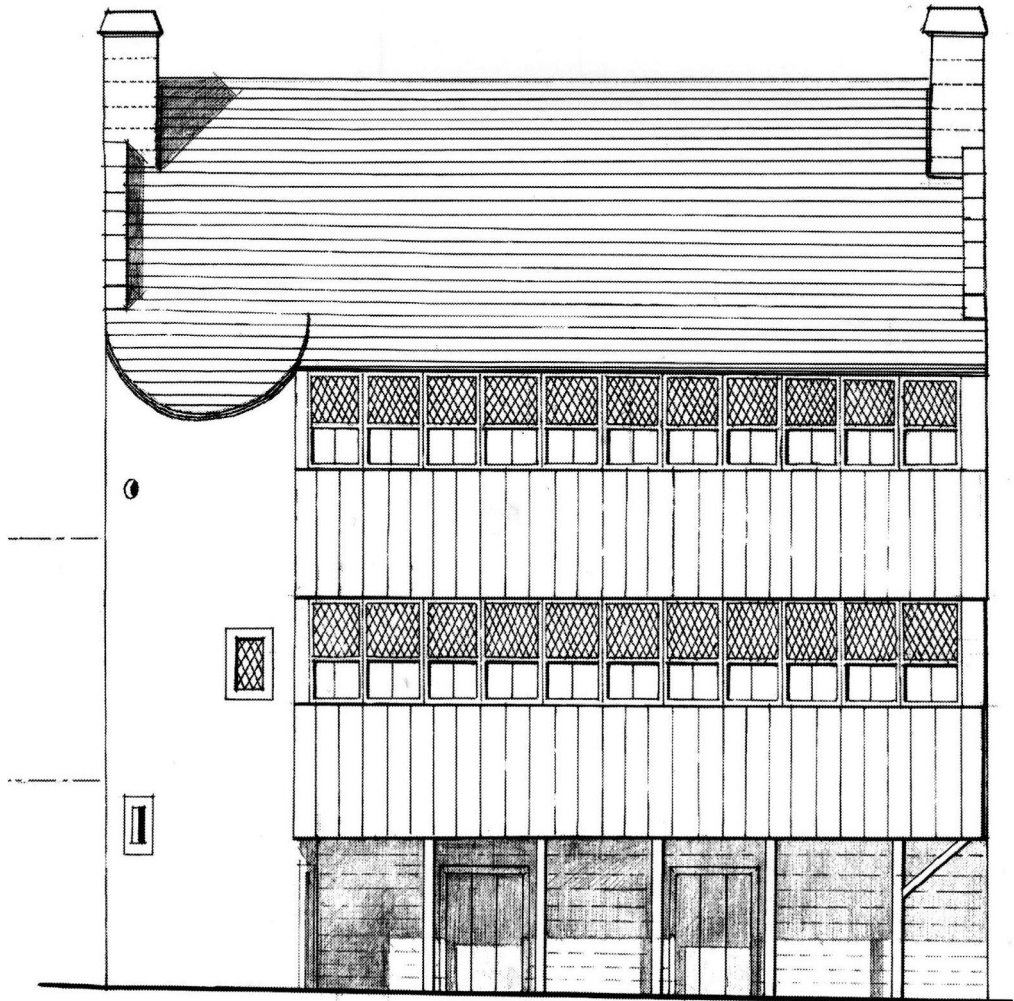


Figure 14

'The Admirable Crichton's House'

Reconstruction with leaded lights and shutters after Gordon of Rothiemay 1647

The building was erected in the early seventeenth century by the first Earl of Kinnoull as his town residence.¹⁵⁵ It was a three-storey building approximately square on plan, with a turnpike stair in the south west corner. Like Garland's Land and No. 75 North Street, St Andrews it comprised a masonry ground storey with two 'lafts' above on the Watergate.

The building was surveyed by Geoffrey Hay of RCAHMS just before its demolition in 1966.¹⁵⁶ The façade was probably similar to that at No. 75 North Street, St Andrews but

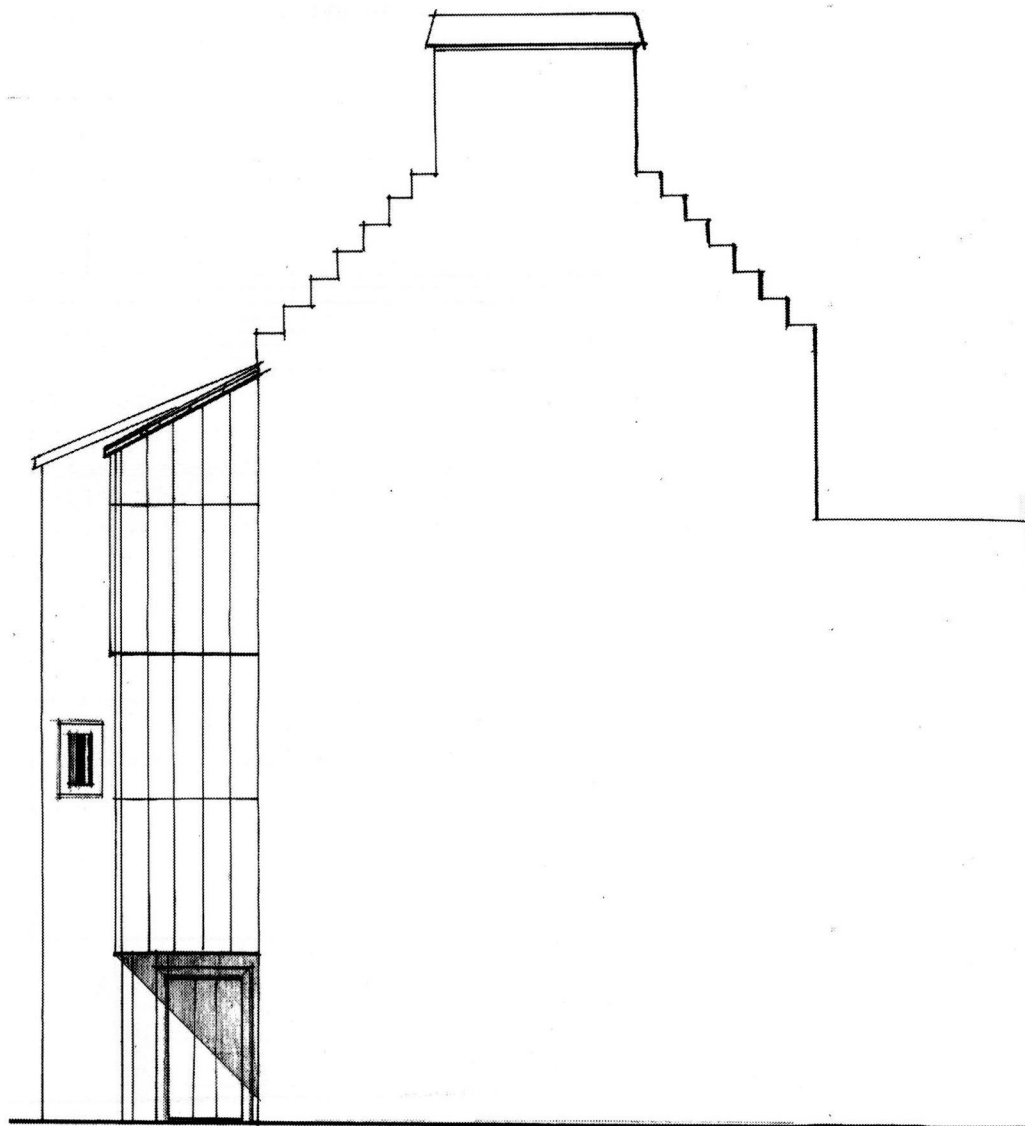


Figure 15

'The Admirable Crichton's House' Reconstruction of College Wynd façade

that cannot be proved. The overall construction, however, was more akin to the building in the Lawnmarket, Edinburgh, that forms the subject of the following reconstruction. Unfortunately later works, also in timber, had disturbed much of the evidence.¹⁵⁷

Kinnoull's Ludging was a three storey building with masonry gables to the north and south and a masonry façade to the back (east). The structure above ground floor was a 'platform frame' forming two 'lafts' visible to the Watergate. The upper 'laft' encased the top of the turnpike stair whilst the lower abutted the masonry walls round the lower portion of the turnpike. The ground floor wall to the Watergate appeared to have been repositioned 1.8 m forward of its original position. This masonry wall was flimsy but provided support to the projection of the 'laft' floors. Later timber work to the 'laft' façades interfered with the original framing although most of the original studs survived. These were mortice-and-tenoned into the top and bottom rails of each 'laft' frame and these joints were then pegged. Three of the original mid-rails also survived and it was concluded by the surveyor that these probably acted as sub-frames for the window frames.¹⁵⁸ This may be correct but the bulk of early illustrations show minimal window openings and it is possible that the window frames were supported by the mid rails and held by the top rails but were narrower than the structural frame. This approach would have resulted in a fenestration closer to that of St Leonard's College and Garland's Land than to the continuous ranges of windows depicted by Gordon of Rothiemay.¹⁵⁹

Hay's graphic reconstruction took the opposite view by following the Gordon of Rothiemay pattern of continuous windows across the façade even although the studs did not line through from floor to floor.¹⁶⁰ It is likely that the ground floor would originally have served as a store room, byre and stable and that the entrance to the turnpike stair would have been external but situated under the 'piazza'. The support to the outer projection of the 'lafts' would probably have been supplied by a series of posts supporting a beam. His reconstruction also failed to consider the ventilation of the property since all the windows were shown as fixed panes.

Hay noted that at the time of demolition the timber frame was clad with a lath-and-plaster finish and that 'this was clearly of secondary construction, but behind successive layers of cladding traces of grooving in associated beams provided some evidence of an earlier panel infill which was probably of timber boards and wattle'.¹⁶¹ This is somewhat ambiguous. How many layers of cladding were uncovered? There are no 'beams' on this elevation. Unfortunately it is too late to ask these questions of Geoffrey Hay and his site notes cannot be found.¹⁶² Does this description infer that the boarding on this façade was set into the 'laft' frames as detailed in the Houtenhuis, Begijnhof 34, Amsterdam¹⁶³ leaving the joist ends of the platforms to be covered by a horizontal boards as in some of the French platform-framed houses?¹⁶⁴

It should be noted that the doorway and lower window of the turnpike stair on this property was an exact mirror image of that at No. 75 North Street, St Andrews.

TIMBERLAND IN THE LAWNMARKET, EDINBURGH

This building backed on to part of Milne's Court was thought to have been part of the former Palace of Mary of Guise (1515-60). Before its demolition in 1883 the building was the subject of an appraisal by Robert Chambers¹⁶⁵ and measured-drawing surveys

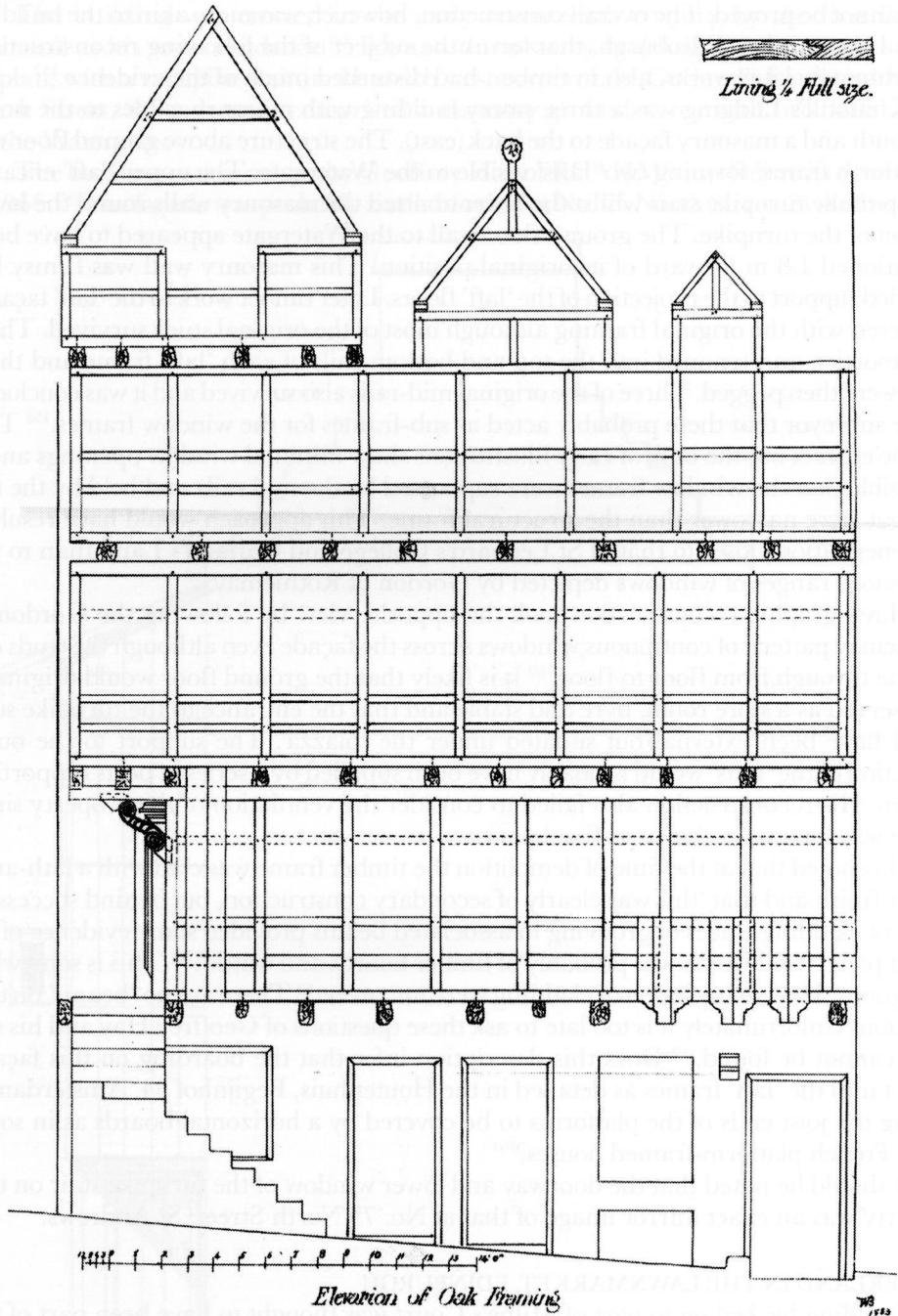


Figure 16
'Timberland, Lawnmarket, Edinburgh' Survey elevation of structure by William Bruce, 1883

by William Bruce¹⁶⁶ and John M. Dick Peddie¹⁶⁷ (Figs 16 and 17).

These three reports illustrate the problems facing researchers both then and now. Chambers was the most influential of the three in terms of readership and he had taken the stance that this was a masonry building with timber 'to-faas' on the upper floors, facing the Lawnmarket. This theory was apparently based on a decision by the Town Council made in 1508 and described by Drummond: 'In 1508, as the Boroughmuir was overgrown with wood, the Town Council enacted that those that were inclined to purchase as much wood as would make a new front for their house, might extend it seven feet into the street'. 'The large timber fronts shown in this drawing, and which prevail in many Edinburgh houses, were under this arrangement, enacted against existing stone walls'.¹⁶⁸ This has remained the normal accepted explanation amongst many Edinburgh based historians even although the likely explanation is that they were adding to existing timber buildings. This will be discussed later in this section.

The second report was prepared by Bruce, an architectural student who was preparing a submission to the Edinburgh Architectural Association measured drawing prize. He failed to find the internal masonry wall described by Chambers but did not want to upset the great man and showed the only space he could not get access to as masonry. That was the space between the floor joists as they passed over the principal structure of large barks spanning from gable to gable. Peddie had no such inhibitions stating that there was no evidence for a masonry wall as described by Chambers and no indication that there had ever been such a wall¹⁶⁹ (Fig. 16). He did however comment on 'unusual technicalities in the gable construction' but did not elaborate on this.

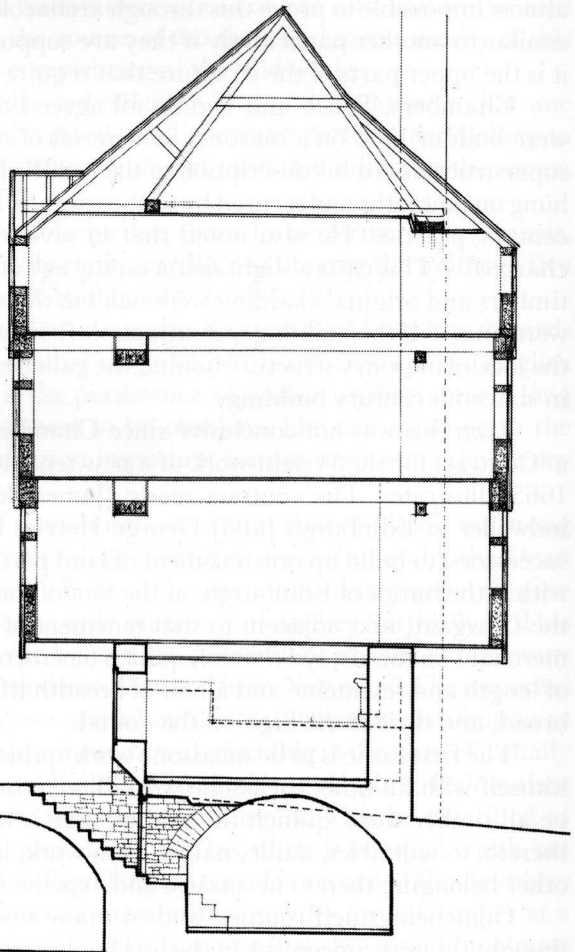


Figure 17
 'Timberland, Lawnmarket,
 Edinburgh'
 Section based on surveys by
 William Bruce and John M.
 Dick Peddie

An attempt was made to locate Peddie's survey notes. Notes and original drawings related to published papers were normally kept by the Society of Antiquaries for Scotland Library but they do not appear to have survived in this case. The Peddie and Kinnear archive was held in the drawings collection of the Royal Incorporation of Architects in Scotland but this was transferred to the National Monuments Record for Scotland and has now been accessioned. It was consulted but there were no notes.¹⁷⁰ The New College Library, Edinburgh University, the Free Church of Scotland Estates Department and the Edinburgh City Archives have all been consulted, but without success.

Certainly all the early descriptions of burgh architecture refer to timber dwellings,¹⁷¹ but after the introduction of the masonry walled ground floor, descriptions change to masonry dwellings with timber galleries overhanging the street. The building survivals, from this period, in St Andrews suggest that both techniques continued in parallel until the seventeenth century when the bias swung towards the masonry structure through the introduction of Dean of Guild regulations based on fire risk.¹⁷² Unfortunately it is almost impossible to prove this through archaeology since one masonry wall tends to be similar to another particularly if they are supporting the same number of storeys, and it is the upper parts of the structure that require study.

Chambers, Bruce and Peddie all agreed that the upper storeys of the building were built in 1560 on a masonry undercroft of *circa* 1450 after a fire had destroyed the superstructure. In his description of the roof Peddie recorded a grey slate roof covering hung on pine laths and secured by timber pegs.¹⁷³ This is all consistent with mid-sixteenth-century practice. He also noted that in several places the roof timbers were 'much charred'.¹⁷⁴ This casts a slight doubt on the age of the superstructure since the structural timbers and original cladding were oak but the slating battens and secondary cladding were pine.¹⁷⁵ If the building was only superficially damaged in the fire this could explain the lack of masonry structure behind the galleries as Chambers had recorded elsewhere in sixteenth century buildings.

Even this was not conclusive since Chambers assertions were not well founded as a 'Contract for the Wright-work of a new tenement in the Cowgate, Edinburgh. 1 July 1665' illustrates. The contract reads: 'James Belsches, son of the late John Belsches, indweller in Edinburgh [and] George Herries binds and obleissis him, his aires and successors, to build up one tenement of land pertaining to the said John Belsches, lyand within the burgh of Edinburgh, at the foot of the Horseynd on the east syd thereof in the Cowgait, nixt adjacent to that tenement of land pertaining to Thomas Craufurd merchant on the eist syd thereof, quhich tenement of land is to he fyftie sevin english foot of length and sevinteine and a half of breadth iff the said tenement be also long and als broad, and thrie storie high off the gound.

The first storie is to be meassone work (quhich the said James Belsches is to furnisch himself with all other meassone work thereto belonging) and the two stories abone to be all timber work (quhich the said George is to build up and to furnisch materialles thereto, to wilt: tries, daille, nailles, iron work, lockis, keyis, bandis, glass work and all other belonging thereto necessarie and expedient.

Conteneing tueff roumes, and so many studies and pantries as sall be contrived, thought fitt and convenient in the foir land.

And all the prople wallis and devisiones within the house to be sylled on both sydis.

And the jeastis and floireing to be dight [dressed] beneath, and the roof to be ane plarforme, quhich the said George is also to doe, and furisch all materials thereto with ballaster is turned about.

And generallie to furnisch and perfyt the said tenement of land, under and above, with the wholl workmanschip and furnitor thereof, in everie expedient quhatsumever, wpone his owine chairges and expenssis (except and onlie measone work quhilik the said James Belsches is to furnisch allenerly.

And quhich is to be done, furnished and endit betuixt the dait heiroy and the terme of Witsondey nixt to cum.

And the said George Herries obleissis him that the said tenement of land sall be wholly waterthight the hail winter seasoone eftir the said terme of Witsondey nixt to cum and in caise he obleisses him to mak the samen waterthight upone his owine expenssis.

For the quhilk cause the said James Belsches bindis and obleisses him, his aires, executors, successors and intromitters quhatsumever, to content and pay to the said George Herries, his aires or assignais, the zoume of tuo thousand merks money of this realme: and that at the finishing and compleitting of the said works.

And the said James Belsches bindis and obleisses him and his forsaidis that ane hundreth dailles and threttie treis in his custodies all properlie perteine and belong to the said George Harreis for effectuating of the said work, and that sall make the samen forthcomeand to them [sic] for that effect.

And both the saids parties binds and obleissis tham to performe the premissis, aither of them to otheris, and the partie observer or willing to observe the soume of five hundredth merks, by and attour the fulfillinf thereof.¹⁷⁶

This contract of 1665 shows the gradual change in Scottish legal language towards Standard English with some Scots expressions being retained, but backed up with English phrases. The main interest, however, is the persistence of timber superstructures long after the date that Chambers assumes them to be obsolete. The oak cladding in the Lawnmarket Timberland was the single most important feature supporting the theory that the building could have been older.

The external finish at the time of demolition was a thin coat of plaster on strong laths. This was consistent with the fire proofing measures insisted upon by the Dean of Guild after the seventeenth century.¹⁷⁷ Below this was tongued-and-grooved pine boarding approximately one foot (30 cms) wide on face and applied vertically.¹⁷⁸ This was consistent with a building of this type built in the sixteenth or seventeenth century when large quantities of pine were imported into Scotland from Norway.¹⁷⁹ The imported pine was normally sawn into scantlings on arrival in Scotland before redistribution to building sites.¹⁸⁰ The section recorded was consistent with cladding in the form of radially cut boards as recorded on timber fronted buildings in the Netherlands.¹⁸¹ Peddie then described the original 'panelling' on the building as being oak. This he described as being 'matchboarded' which normally means that the boarding is of equal width but could mean that boards were matched to form larger areas. He recorded that width as two feet seven inches (77.5 cms). This was an extraordinary width for oak timber at a time when it was considered to be in short supply. It seems that this would be almost

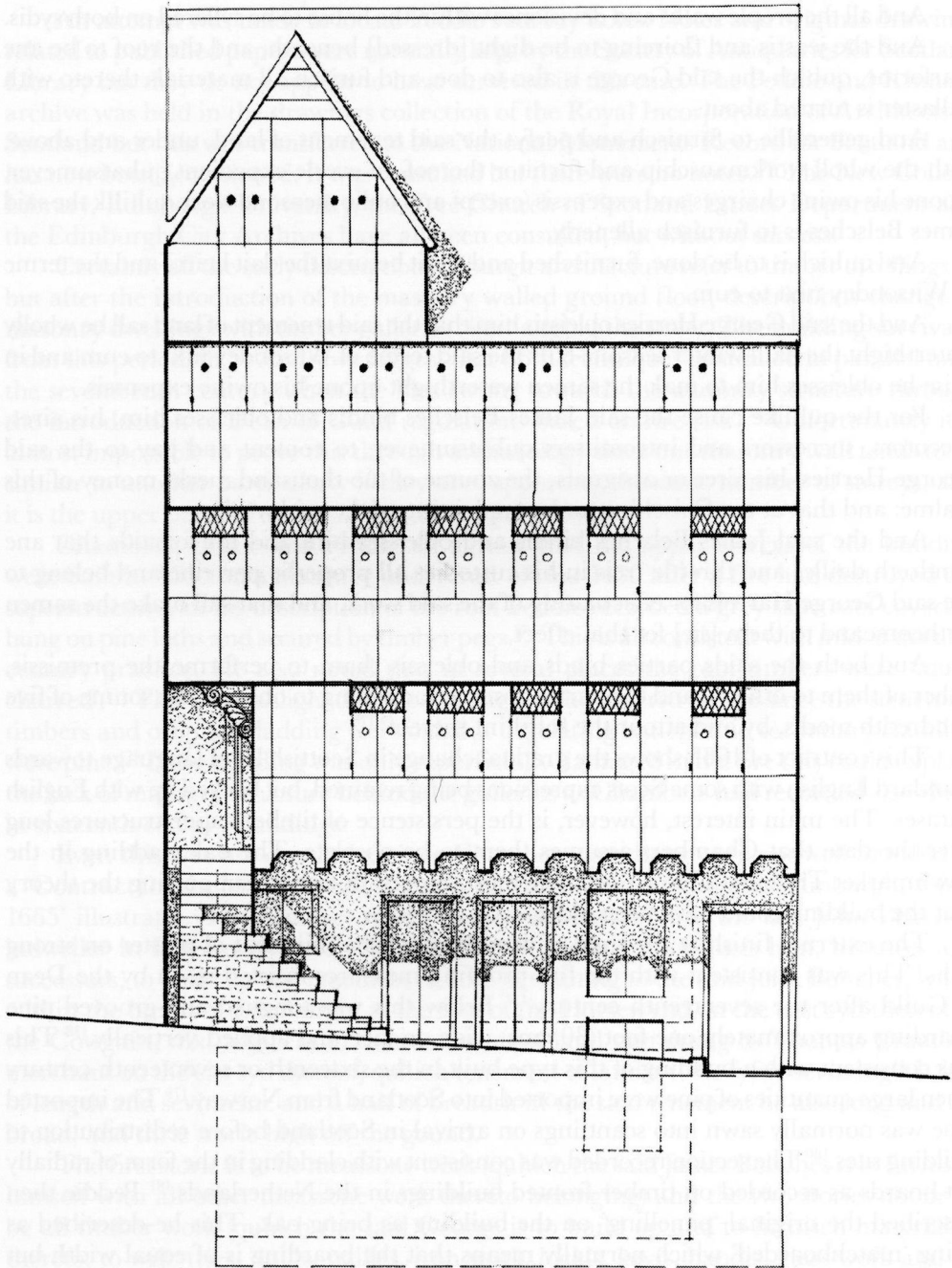


Figure 18

'Timberland, Lawnmarket, Edinburgh' Reconstruction of sixteenth century façade based on information from Bruce and Dick Peddie surveys.

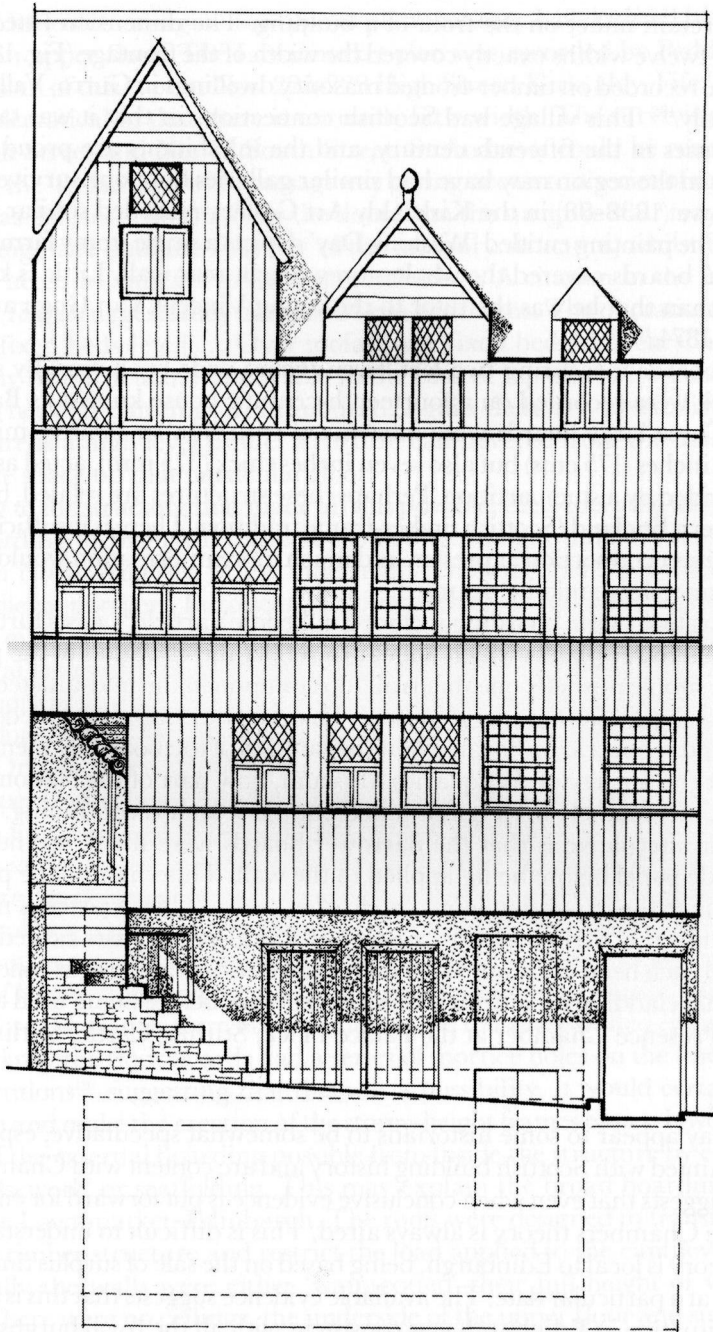


Figure 19

'Timberland, Lawnmarket, Edinburgh' Reconstruction of late seventeenth, early eighteenth century façade, based on information from Bruce and Dick Peddie surveys

impossible to retain intact on the front of a building. The dimension fitted the façade exactly in that twelve widths exactly covered the width of the frontage (Fig. 18). Boards of this width were recorded on timber-fronted masonry dwellings in Gurro, Valle Cannobia, Piedmonte, Italy.¹⁸² This village had Scottish connections in that it was taken over by Scots mercenaries in the fifteenth century, and the inhabitants are proud of this link. Other villages in the region may have had similar galleries but none survive. A painting by Anton Mauve (1838-88) in the Kirkcaldy Art Gallery recorded similar boards used horizontally. The painting entitled 'Washing Day' depicts a single storey farmhouse where four horizontal boards covered the whole storey-height rear wall. Little is known about Mauve other than that he was the tutor to the young Vincent Van Gogh and settled in the Hague in 1874.¹⁸³

Massive boards measuring two feet seven inches wide (77.5 cms) by seven inches (375 cms) thick were recorded on a fourteenth-century house known as Baguley Hall, Cheshire.¹⁸⁴ These large boards were intermixed with smaller boards, minimum size one foot three inches (175 cms) but also seven inches thick (375 mm), acted as the support normally provided by a stud partition. Perhaps these structures are related, both forming part of a northern England/Scottish timber-frame tradition. There is insufficient evidence to make any direct connection at present and much more information would be required before this connection could be assumed.

The illustration of the boarding included in Peddie's article¹⁸⁵ casts further doubt in that it shows narrower planks which appear to reflect the elevation of the pine boards. This may be a simple mistake, one that is all too common in the mid-nineteenth-century *Proceedings of the Society of Antiquaries of Scotland*. This may be cleared up if Peddie's original survey notes and report can be located or if the samples of the boarding mentioned in the text are still at the Society of Antiquaries Museum, now part of the National Museums of Scotland. Unfortunately both quests failed but the search is continuing.

The other alternative is that the narrower boards were made up into a two foot seven inch wide panel before being applied to the wall. This changes the proportion of the building since the expansion joints are further apart. This practice is not unknown in Scotland since the Stirling Heads, a series of Renaissance busts carved in oak with wreaths round each head are made up in three board widths and might conceivably have formed external cladding for a timber framed structure before being used as the ceiling in the Royal Presence Chamber at the Palace Block, Stirling Castle, Stirling.¹⁸⁶

CONCLUSION

This paper may appear to some historians to be somewhat speculative, especially those that are acquainted with Scottish building history and are content with Chambers' theory. Experience suggests that even when conclusive evidence is put forward for entirely timber structures, the Chambers theory is always aired. This is difficult to understand since the Chambers theory is local to Edinburgh, being based on the sale of surplus timber from the Boroughmuir at a particular date. The available evidence suggests that this is a red herring and that the situation in Edinburgh was consistent with all the royal burghs of Scotland. The existence of the Royal Mile as a surviving medieval street is often put forward in support of Chambers yet it is well documented that seventy percent of the buildings on the Royal Mile were rebuilt in the seventy years between 1840 and 1910.¹⁸⁷

It is not difficult to imagine the type of plan that may have existed behind a timber frontage to an upper floor. The Lawnmarket plan was recorded by Peddie¹⁸⁸ and Stell described a plan of this type at Nos. 225-229 High Street, Kirkcaldy, Fife.¹⁸⁹ The 'to-faa' is more problematical in that there is normally little width. The surviving elevations at No. 75 North Street and No. 77 South Street, St Andrews could be read either as the utilisation of the 'to-faa' as a wide passageway giving access to a series of rooms that may have served as 'houses'. Alternatively the door from the turnpike stair may have entered a room linking back onto the first bay of the masonry structure, whilst the remainder of the space acted as annexes to each successive bay. A citation in the *Dictionary of the Older Scottish Tongue* suggests they may have been bedrooms. The quotation reads 'Nether toofall, two fixed beds [etc.] ... Over toofall, ane fixed bed: Craven. Ch in Orkney II 96'. This may be particularly applicable in the case of top-storey 'to-faas' as appear in various sketches and paintings in Edinburgh. Again there is a possibility that this top floor structure is a high level timber structure cantilevered from the masonry walls to provide more space on that particular floor.

Turning to the structure that made all this possible; the Scots used a type of platform frame. According to Brunskill this is a type of lightweight timber frame construction developed in North America in the nineteenth century,¹⁹⁰ but the evidence suggests it is a late-medieval northern European building technique taken to North America and subjected to mass production techniques at a much later date. In the Scottish version of this structural technique the platform comprised a series of timber balks evenly spaced across the width of the building or in some cases a series of logs, squared on opposite sides to give a uniform depth, the spacing being adjusted to accommodate lateral irregularities in the log. On the lowest timber floor these were built into the supporting masonry walls, on upper floors they sat on the top plate of the storey height frames. These frames comprised a top plate, one or two mid rails and a base plate, linked by a series of studs. These plates varied in size according to their position in the structure and were attached to the platform by means of trenails (probably known as 'garrons' in Scotland). There is no evidence of bracing in either of the surveys consulted. The timber frame was usually used in conjunction with masonry gables which acted as fire walls between properties and in the case of Kinnoull's Ludging, a masonry rear wall. It is not known whether the floor was laid before the frames were erected, but in one masonry walled eighteenth century house in Orkney the floor boards had a series of mortice holes on the line of the former internal partitions¹⁹¹ suggesting that this was a possibility. It would certainly speed up construction and make the erection of the storey-height frames easier. It would also make the fixing of the external boarding possible from inside the structure by eliminating the need for 'falsework' or scaffolding. This may explain the broad boarding recorded by Peddie at the Lawnmarket, Edinburgh. The roofs were designed to transfer the loads to the internal timber structure and restrict the load applied to the cantilevered wall.

Internally the walls were either 'wainscotted' their full height or were lath-and-plastered. There were no ceilings, the underside of the upper floor and supporting joists being decoratively painted.¹⁹²

It is more difficult to be positive about the construction of 'to-faas'. The floor structure was probably cantilevered from a series of putlogs in the masonry or supported on brackets

or on a post-and-beam structure at ground floor level. This theory is supported by the report prepared by Geoffrey Stell, RCAHMS, on Nos. 1-3 Harbour Place, Burntisland, Fife.¹⁹³ He considered that there had been to-faas on both the east and west sides of the building. The to-faa on the east had been removed but there was a line of corbel stones a little below the eaves line that had been used to support the upper end of the to-faa roof. On the west the to-faa had been consolidated in masonry. Inside the roof was a similar row of corbel stones above which was a drip course, possibly used as a tilting course for the base of the original thatched roof. From this it might be deduced that the roof timbers rested on a beam supported by these corbels. A possible reconstruction is shown at Figure 19. Again a citation in *DOST* tends to confirm this type of structure: '32 Hewin stanes to be corbellis and skewputts to be the heich toofall', 1618 H. Works Acc. (ed.) II 121.

It is thought, but as yet there is no conclusive proof, that this platform frame technique may have been common in the northern counties of England. This statement is based on information obtained from architect Ian Bruce of Aberdeen who has been working on the houses built by early colonists in North America. In the settlement he has been concentrating on the proportion of traditional frames to storey-height frames correspond to the proportion of families from south and north of a line across England formed by extending the southern boundary of County Durham to the west.¹⁹⁴ This confirmed that the proportion of settlers from south and north of this line was exactly the same as the proportion of settler houses built using the traditional English frame and those using the platform frame.

The statement that Scotland was a timber building nation until the Union of the Crowns in 1606 and only converted wholeheartedly to masonry building after the Union of the Parliaments in 1707 is irrefutable. The description of the Great Fire of Dunfermline in 1624¹⁹⁵ is only one of a great many accounts of towns, villages and single farmhouses being destroyed by fire. The account states: '25 May 1624: ... a wad of burning lint [raw flax fibre] fell upon the thatch of a nearby house. The wind blowing strongly from the north-west fanned the flames and in four hours the fire had burned a wide path through the town from the Rotten Row to the Nethertown, destroying the houses in Collier Row (Bruce Street), North Chapel Street, the Crosswynd, all the north part of the south side of High Street, the upper part of the New Row and the north side of the Maygate ... despite all efforts ... about nine tenths of the town was burned down. Most of the houses with wooden upper storeys above a stone ground floor were thatched with turf, heather or straw and burned like tinder ... It was calculated that two hundred and twenty 'tenements' housing two hundred and eighty seven families were totally destroyed'.¹⁹⁶

The reporter continues: 'The opportunity afforded by this disasterous event was not lost. Many of the rebuilt houses were of a larger and better design though in the main streets wooden fronts still projected above the first storey, outside stairs encroached on the roadway, and only the Hie Gate was causewayed'.¹⁹⁷ Unfortunately, the author who had worked from Burgh records and archives did not list her sources.

The professional historian on the other hand does provide sources but often misinterprets the meaning. Elizabeth Torrie refers to Dundee in the following terms: 'Frontage dwellings were to show significant advancement by the end of the Medieval

period. Pedro de Ayola, after a visit to Scotland in 1496 reported that: 'The houses are good, all built of hewenstone and provided with excellent doors, glass windows and a great number of chimneys'.¹⁹⁸ She is quoting a reputable source provided by W. C. Dickinson, Gordon Donaldson and I. Milne in *A Source Book of Scottish History*, II.53 (London 1958-61). Pedro de Ayola was probably using the term 'house' in the English legal sense of 'a dwelling where the occupant owns the whole structure including roof and solum'. He is therefore probably referring to the new wave of towerhouse building that had commenced in the fifteenth century and continued till the seventeenth century,¹⁹⁹ in which his hosts resided. This has nothing to do with burgh architecture but it does illustrate the care that must be taken in interpreting archive material.

During the preparation of this paper a parallel study has been published.²⁰⁰ This deals with the loss of the timber aesthetic in Scottish burghs, particularly Edinburgh and Glasgow, resulting from the demise of timber structures and cladding. This study generally confirms many of the arguments put forward in this paper, particularly with regard to Dean of Guild legislation. There are however some fundamental differences in the conclusions drawn regarding the nature of the timber galleries.²⁰¹ There is no mention of the type of timber frames used in Scotland.

The sketches of Scottish timber cladding generally show vertical boarding that covers the whole structure including joist ends and jetties (Fig. 19). Very occasionally the boarding sits flush with the upper edge of a supporting beam. This has been noted in Amsterdam²⁰² also in Valle d'Aosta²⁰³ and Valle Antigorio,²⁰⁴ Piedmonte, Italy. Unfortunately this is not supported by documentary or survey evidence that might explain the constructional detail. Hopefully visits to Amsterdam and Piedmonte might give a better impression of how this detail was formed. If successful a supplementary report will follow.

The gradual disappearance of timber-clad, timber-framed buildings during the eighteenth and nineteenth centuries is paralleled throughout Northern Europe. James Essex, a Cambridge builder, toured Flanders in August 1773 studying the churches and monastic buildings. He visited many of the cities where examples of timber-framed, timber-clad buildings still survive without comment but on reaching Mechelen, Antwerpen Province, Belgium, he noted: 'the houses in general are built with stone though there are many of them built with timber, the storeys projecting forward as they rose and the outsides boarded'.²⁰⁵ This suggests that at that time Mechelen was lagging behind Antwerp, Bruges, Brussels, Gent, Lille and Oudenaarde all of which were included in his itinerary, and still retain some timber-framed, timber-clad buildings today.

The reason for the change was not always down to trends or economics. On the 26 November 1686 The Edinburgh Town Council made a proclamation stating: 'The Councill considering that of late there had been ane malicious and wicked designe made by some persones of purpose to burne and totallie demolish that most part of the north part of the Citie which (except some few lands) consists in timber lands'.²⁰⁶ This was to be achieved by setting a fire of coal against the door of a turnpike stair on the north side of the High Street. This was foiled as was the follow-up attempt to burn the backlands of the same properties by setting fire to combustable materials in a 'high cellar' in the same close.²⁰⁷

These attempts to change the nature of urban building were unsuccessful but by the

end of the nineteenth century most of the urban timber buildings in Scotland had been demolished and many Scottish academics were in denial that they had even existed in any great number.

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80. Tamponne, G., *Il Pestauo delle Strutture di Legno Hoepli* (1996), 136.
81. Cragie *et al*, 1937-2001, *op.cit.*: PLAT – A flat surface. 5a A flat roof. A landing (on a stair); PLATE n.7 'A platform supported by a scaffold'; Platform (e) l.c. 'A flat roof'. 2.a. 'A raised level stage (apparently usually of wooden construction) for mounting artillery upon'. 2.c. 'A raised stage stand or walk of timber. A wooden platform'; Grant and Murson, 1939-76, *op.cit.* PLAT III. 1. 'A flat surface of any kind'.
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92. Crone, B. A., 2004(a), *op.cit.*, (2).
93. Crone, B. A., 2004(b), *op.cit.*
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104. Gordon of Rothiemay, 1647.
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106. *Ibid.*, 27, 167.

107. Walker, B., 2005, *op.cit.*
108. *Ibid.*, 'Wrights', 176.
109. *Ibid.*, 'Panelling', 176.
110. *Ibid.*, 'Wainscotting'.
111. Craigie *et al.*, 1937-2001, *op.cit.*, TENEMENT – 1.a. A holding of land. 1.b. Such a holding with a building or group of buildings occupying part or all of its area, usually within a burgh; Grant & Murison, 1939-76, *op.cit.*, Tenement n.l. 'A holding (specifically) a piece of land occupied under some form of tenure and built on'.
112. Craigie *et al.*, 1937-2001, *op.cit.*, LAND A holding of burgage land (normally built up) in a burgh. 8.b. A building or group of buildings erected on such a holding. 8.a.b. 'The land that quhilium Roger Williamson dwelt in and ane other lital sclave house laind in the Chekar': 1436-7 Edinb. B. Rec., 1.5; Grant & Murison, 'Land', N.5. Glasgow 1848; J. Smith's Working Classes 24: 'In McLaren's land, one entry and stair admits of upwards of forty dwellings'.
113. Craigie *et al.*, 1937-2001, *op.cit.*, LUDGING 2. An abode, dwelling place of residence, or accommodation; Grant & Murison, 1939-76, *op.cit.*, LODGE. i.2. Aberdeen 1767 *Aberdeen Journal* (23 Feb.) 'These tenements of foreland, inland and backland, lying on the south side of the Castlestreet of Aberdeen, commonly called Marishall's Lodging'; 'Lodge'. 1.2. Stirling 1722 *Caledonian Mercury* (5 July) 'A great stone ludging or tenement of land consisting of 10 fire rooms, 2 closets, wardrobe, lairdner, Pantry'.
114. Craigie *et al.*, 1937-2001, *op.cit.*, HOUS. 1. A dwelling place. 2. A building or part of one, resembling a dwelling house, but used for some other purpose. 2.c. A compartment. 3.b. A household; Grant & Murison, 1939-76, *op.cit.*, 'House': l.n.l. A set of rooms in a building occupied by one tenant or family'; Stell, G., 1980, *op.cit.*, 13.
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118. Grant and Murison, 1939-76, *op.cit.*, Taploch, Tauploch, Tawploch, 'A giddy foolish girl'.
119. Craigie *et al.*, FAA-BUIRD.
120. *Ibid.*, GARRO(U)N.
121. *Ibid.*, LAFT. A loft or upper apartment built on the joists under the roof or a building or room. LOFT 4.a. The upstairs part of a building. The upper storey of a two storey building. c. any upper room of a building. 5.a. One of several floors or storeys of a building; Grant & Murison, 1939-76, *op.cit.*, Laft l.n.l.'the upper storey of a two storey building'.
122. *Ibid.*, Plat III.n.l.
123. Craigie *et al.*
124. *Ibid.*, Riggig(g) 3. The ridge of the roof of a house: also applied to the roof itself and (once) to the ceiling: 3b. The materials employed for ridging or roofing a house, collectively. 4. The action of ridging or roofing a building.
125. *Ibid.*, Ruf(e). 1. 'A roof to a building'.
126. *Ibid.*, To fal. 1. An additional building using for one wall the wall of an already existing building: a lean-to building: an annex.
127. Grant & Murison, 1939-76, Timmer. 2. II (5).
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129. RCAHMS, 1933, *op.cit.*
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141. Dingle, R. B., n.d., *op.cit.*
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144. *Ibid.*
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149. *Ibid.*, XXIII.
150. Oliphant, J., 1767, *op.cit.*
151. Lamb, A. C., 1893, *op.cit.*, XXIII.
152. Oliphant, J., 1767, *op.cit.*
153. Grant, J., n.d., *op.cit.*, 1:209 & 220.
154. Hay, G., 1965, *op.cit.*; Stell, G., 1980, *op.cit.*, fig. 8.
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157. Stell, G., 1980, *op.cit.*, 18.
158. *Ibid.*
159. Gordon of Rothiemay, 1647, *op.cit.*
160. Hay, G., 1965, *op.cit.*
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162. Stell, G., 2004: pers. com.
163. Rijksdienst Monumentenzorg, 1955, *op.cit.*
164. Anon., n.d.(b), *op.cit.*, plate II and plate 27; Nesfield, W. E., 1862, *op.cit.*
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