The Geology, Performance and source of Magnesian Limestone for building the New Palace of Westminster

The story of the ‘Clitheroe’ Pinnacle starts approximately 300-250 million years ago during the late Permian era. It was during this period that Magnesian Limestone was formed. Predominant lifeforms in ‘Permian England’ were bryozoans and brachiopods.

A detailed study and description of the Magnesian Limestone or ‘Cadeby Formation’ by Peter del Strother is included in Chapter 3.

Magnesian Limestone for building purposes was essentially a stone of north eastern England and in particular Yorkshire. There are a few pockets of it in Cumberland (now Cumbria) but nearly all is to be found along a comparatively narrow strip which starts just north of Nottingham and runs along the Nottinghamshire-Derbyshire border between Mansfield, Bolsover and Worksop.

A review of the Geological Map of Great Britain on the following page shows that Magnesian limestone is one of the least prominent stone systems of the islands.

The extent of the late Permian limestones was first shown in the County Maps of William ‘Strata’ Smith (1815–24). Smith was one of the four Commissioners who was involved in the selection of the Cadeby limestone for the Houses of Parliament. Initially this came from the Bolsover and Mansfield Quarries in Derbyshire. The inability of these quarries to meet the unprecedented demand for the New Palace eventually lead to the change to Anston for this supply and it then provided most of the stone for the upper exterior part of the Houses of Parliament. The quarry size and particularly the excellent means of transportation available from Westminster were the principle deciding factors in switching to another source for the magnesian limestone supply.

From 1840 until the mid-1850’s some 500,000 cubic feet of limestone were quarried and carted to London. The stone was taken on horse-drawn sleds from North Anston a few miles to the Chesterfield Canal. Local records indicate similar, if not greater, quantities of stone from Anston.
was quarried from the turn of century up to the outbreak of the First World War for continued repair works to the exterior masonry. During the early C20th more stone was required to undertake further and, in some areas, extensive repair works.

Clearly it had not been apparent to the Royal Commission appointed to select the stone for the New Palace that there would be some serious implications arising from the selection of this stone. The importance of selecting the ‘correct bed’ for the stone blocks when selecting and removing from the quarry and in the mason’s yard would have been well known at the time so that, with some specific exceptions, when stones were laid in construction they would lie in the same way that they had been formed during the Permian period. It seems that due to the pressure of the contract this understanding was not sufficiently rigorously applied.

The chemical reactions between the calcium magnesium carbonate and an increasingly sulphate polluted atmosphere and the inherent permeability of the stone would not have been apparent to any great extent at that time. A later section of this Chapter looks at these issues more closely.

Alec Clifton-Taylor wrote ‘Though much of the Anston has worn well … unfortunately the hard beds were interspersed with a few that were not so hard, the stone from which should have been rejected out of hand. Instead, owing to parsimony and the absence of expert supervision at the quarry, all were used, with the result that signs of decay began to appear almost as soon as the building was finished.’

Where the stone was used in its ‘native’ location of the North East of England it has generally fared better and Clifton-Taylor believes its use in this region has left us with a ‘noble inheritance’. He further declares his fondness for it by quoting Arthur Oswald ‘... although there are many other building stones in Yorkshire the white magnesian limestone is the aristocrat of them all.’

The ‘Great Fire’ of 1834

The cause of the fire which was to destroy the complex of buildings which formed the ‘Old’ Palace was the method chosen to dispose of an Exchequer recording system which used ‘Talley Sticks’. ‘Tallies’ could be either single or split sticks and date back into Pre History. They were devised as memory aids to record, usually, financial or ‘worth’ transactions. They came to prominence in Plantagenet England when Henry 1st decreed, at the beginning of the C12th, that they be used by the Exchequer to record the collection of taxes by his Sheriffs. The system remained in continuous use until 1826 and along the way gave us the expression of ‘keeping a tally’.

Within the Old Place of Westminster, a large quantity of tallies – apparently ‘some two cartloads’ - were left behind. It was the decision by the Palace’s Clerk of Works to get rid of them by burning in the furnaces. It was the overzealous stoking of the furnaces and lack of appropriate monitoring that led to the fateful fire when panelling in the Lords Chamber above caught fire and went un-noticed until it was too late to extinguish. The largely timber structure and superstructure of the collection of buildings which made up the Old Palace resulted in the most of the Palace being destroyed beyond repair. This was a great spectacle for the citizens of Westminster and Central London. In the pre photographic era it attracted many artists.

3 Arthur Oswald from an article in Country Life Annual 1959: ‘The White Stone of Yorkshire’
to record the event. Certainly Turner and Constable captured the drama. It is likely that Charles Dickens also witnessed the inferno along with thousands of others, it being the largest fire to have been seen since the Great Fire of 1666.

Fortunately, there were no fatalities and Westminster Hall was saved due to the decisive action of the Prime Minister, Lord Melbourne and James Braidwood of the London Fire Brigade Establishment who are jointly credited with actions which saved one of the earliest and most complex timber framed structure in Britain. Braidwood subsequently became known as ‘The Father of the British Fire Service’.

Much significance was attached at the time to the destruction of the Mediaeval and Georgian conglomeration which comprised the Old Palace, coming as they did during a period of great significance in British History marked by the end of the Georgian era and commencement of the Victorian; the ‘dawn of Empire; the Passing of the ‘Great’ Reform Act of 1832; the arrival of the railways and the rapid industrialisation of Britain. It was perhaps fitting that these changing times were to be served by a great and new House of Parliament - for Commons and Lords - able to provide accommodation appropriate to the nation’s needs and in the process create an iconic building which is now synonymous with London and Britain.

The full and fascinating story of the Great Fire is told in ‘The Fire of 1834 and the Old Palace of Westminster’.

Parliament was temporarily convened by making temporary repairs to the Old Palace ‘Painted Chamber’ for use by the House of Lords until 1847 on completion of the new House for the Lords it was demolished in 1851. The Old Palace ‘Lesser Hall’ was used as the chamber for the House of Commons until 1852.

Rebuilding the Palace

In 1835, a Royal Commission was appointed to study the rebuilding of the Palace and a heated public debate over the proposed styles ensued. The Neo-classical style, similar to that of the White House in the United States, was popular at that time. However, as the design was associated with ‘revolution and republicanism’ while the Gothic style was felt to embody ‘conservative’ values, the commission announced in June 1835 that the style of the buildings should either be ‘Gothic’ or ‘Elizabethan’.

The commissioners also decided not to retain the original layout of the old palace, although the new design should ‘incorporate the surviving Westminster Hall, the Undercroft Chapel and the Cloisters of St Stephen’s’.

A public competition

In 1836, the commissioners organised a public competition to design a new Palace in either of these styles. A competition brief was drawn up by the Commissioners and for a project which was to be the large
est single contract ever commissioned by the Government this brief is surprising in its brevity. They received 97 entries, each identifiable only by a pseudonym or symbol. From these, the commissioners chose four, of which they were unanimous in preferring entry number 64 which bore the emblem of the portcullis. This was the entry submitted by Sir Charles Barry (1795 – 1860), who had proposed a Gothic-styled palace in harmony with the surviving buildings.

Barry was one of the most famous architects of the day and had completed many notable public private and ecclesiastical commissions by the time he entered this competition. His experience was one that was based on the Neo-Classical style which is now synonymous with the Georgian period. Two typical and notable examples of this period in Barry’s early career are the Royal Manchester Institution (1824) and Manchester Athenaeum (1837).

These two building now form the Manchester city Art Gallery and illustrate what a monumental change in style would be required for Barry to meet the fundamental criteria for entering the competition for the design of the new palace as the Commissioners had determined that the new Palace should be in the Gothic or Elizabethan style.

Once Barry had been shortlisted he persuaded the lesser known Augustus Welby Northmore Pugin (1812 – 1852) to assist him. Pugin was ‘... a gifted 23-year-old Catholic architect and draughtsman who had devoted himself entirely to the pursuit of Gothic architecture’.

In 1836, Pugin published Contrasts, a polemical book which argued for the revival of the medieval Gothic style, and also “a return to the faith and the social structures of the Middle Ages. The adjacent illustration of 1834 for a model Workhouse plan demonstrates his familiarity with - if not yet mastery of - the Gothic style.

Though engaged initially to develop the interior details of the palace in the ‘Gothic Style’ Pugin is understood to have had a significant involvement with exterior details too, and to give - what many regarded at the time - Barry’s classical composition of the Palace, in particular along its most prominent and iconic Thames elevation, a more gothic appearance.

Certainly between the initial competition drawings and the final ones there is a greater emphasis on the vertical to counter
the strong horizontal emphasis of Barry’s masterplan.

That few of the original drawings from either the Barry of Pugin studios remain is both surprising, and frustrating for a study such as this, given the significance of both the commission and the architects involved.

The Construction of the New Palace

The construction of the new Palace began in 1840. The estimated construction time was six years at an estimated cost of £724,986. The project actually took more than 30 years and at a cost of over £2 million! The foundation stone for the building was laid by Sir Charles Barry’s wife on 27 August 1840. The House of Lords first sat in their new purpose-built chamber in 1847 and the House of Commons in 1852 (by which time Barry received a knighthood and Pugin was dead). Although much of the rest of the building was completed by 1860, construction was not finished until a decade afterwards.

During the construction of the Palace, Barry came to rely more and more on Pugin in the execution of the plans, and particularly the of detail, fittings and furnishings and it was Pugin who was responsible for the highly decorative Gothic interiors including various carvings, gilt work, paneling and furniture in the rooms and right down to ironmongery and wallpaper.

At a very early stage in the life of the Building the problem of using magnesum limestone in the increasing polluted atmosphere of Central London became apparent.

As previously referred to areas of the magnesian limestone quickly began to decay as a result of atmospheric pollution from coal burning in London and the poor quality of the material used. Although these defects in the choice of stone were visible as early as 1849, very little was done to prevent its decline during the 19th century. Barry himself experimented with various compositions on the stone and believed that the decay had been halted.

The lack of records of both architect’s contributions eventually did nothing to suppress the speculation and controversy as to just who deserved the greater recognition for the now world famous Palace of Westminster. This was in part due to books and pamphlets which were published after the death of both architects by their sons.\(^8\) This controversy centred around who deserved the greater credit and recognition for the completed work. Though there had been friction between the two during the 17 years they worked together, which would occasionally lead to a complete breakdown in relations,

Pugin carried on to supply Barry with the details he continuously required up until his death in 1852. Given the pressures

8 Alfred Barry, Clergyman son of Sir Charles and Edward Welby Pugin, architect son of Augustus
which all were put under to meet unrealistic deadlines for underestimated costs, tensions were hardly surprising.

Pugin is widely recorded as having remarked to an acquaintance about the near complete building while passing along the Thames ‘All Grecian Sir, Tudor details on a classic body’ but he is also recorded as recognising the masterplan for the new Palace as being ‘entirely Barry’s’.

Pugin’s relationship with Barry remains a frequent topic in the Journal of the Pugin Society: ‘True Principles’ and the following is an extract from an article by Victor Simion:

‘It has been noted that the New Houses of Parliament are an example of how Pugin responded to the way in which Victorians ‘were increasingly moving towards God and, consequently were building a Christian environment for a Christian people’. Indeed, Pugin thought that ‘a Catholic’s belief should be legible in his secular buildings as well as his churches’.

‘The building carries a strong sense of verticality, one that had to be restrained by Barry. In 1841, the later added more horizontal emphasis in the design and yet the vertical pinnacles still strongly define the buildings silhouette. While typical of Victorian syntax, we know that, for Pugin, they were emblems of the Resurrection. While the authorship of these elements remains somewhat uncertain, they appeared in the winning design of 1836 and at the same time as the inclusion of the Clock Tower, the precedent for which has been attributed to Pugin’s own Scarrisbrick Hall.

Neither architect would see their creation completed as they both worked long hours and endlessly worried about every detail of the design and building of the Palace. It was not until 10 years after Barry’s death in 1860 that the new Palace was completed, with his son Edward taking over the completion stages of the work. Pugin’s fragile health also suffered greatly from his exertions on this as well as his many other projects. His evangelistic zeal for both Gothic Architecture and the Catholic faith, which he converted to in 1834, added to these pressures.

In February 1852 Pugin was confined to a private asylum, Kensington House, and then in June he was transferred to the Royal Bethlem Hospital, popularly known as ‘Bedlam’. In September he was taken home to his house in Ramsgate, where he died on 14 September 1852. Barry was also someone who had recurring bouts of illness during his professional career. Following a visit to the Crystal Palace on 12 May 1860 he suffered a major heart attack and died later that evening at his home, The Elms, on Clapham Common. His funeral and interment took place at one o’clock on 22 May in Westminster Abbey.

Putting aside the issues of the suitability of the stone and issues of quality control in both quarry and on site, what cannot be denied is that out of the ashes of the evening of 16 October 1834 - and despite all of the unrealistic deadlines, estimates, political pressures and the personal

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9 ‘True Principles’ vol iv no ii Winter 2010-11
10 Second Oscott Lecture, from M. Belcher
AWN Pugin: an annotated critical biography
1987, p 82
tensions these caused - Barry and Pugin succeeded in creating a building which is arguably more synonymous with Britain, than any other building or structure for any other period in the nation’s history. The Illustrated London News described it as ‘without doubt, the finest specimen of Gothic Civil Architecture in Europe; Its proportions, arrangement and decoration, being perfect’.

The Palace’s condition remains a major cause for concern and studies are currently being prepared to determine how best to undertake the next programme of repair works. That will be a story for others to tell at some time in the future.

20th Century Restorations

During the 1920s, it was clear that something had to be done, especially when a large fragment fell off the Victoria Tower and members on the Terrace were advised to sit near the river rather than underneath the main wall of the building. By 1928 the Anston Quarries were worked out and it was deemed necessary to use Clipsham stone, a honey-coloured limestone from the Medwells Quarry in Rutland, to replace the decayed Anston. Restoration began in the 1930s, but it was brought to a halt during the Second World War and was completed only in 1960.

The effects of these repair works and the addition of new stone nevertheless began to make the Palace appear like a patchwork quilt. By the 1960s, questions about it were being asked in the House of Commons. Various repairs work programmes continued through the C20th.

21st Century Restorations

The dawn of the C21st saw no let-up in the problems of the building’s fabric and added to the issues of the condition of the masonry were failings with Victorian building services and the unrecorded presence of asbestos. These resulted in the commissioning of two major studies the ‘Pre-Feasibility Study and Preliminary Strategic Business Case’ and the ‘Independent Options Appraisal’. These were published in 2012 and 2015 respectively. A summary of these reports recommended consideration of the following alternatives:

Option A: Rolling programme - Undertaking the minimum work with Parliament remaining in occupation would take around 32 years. During that time both Chambers would have to close for between two to four years, at different times, but sittings could be relocated to a temporary structure elsewhere in or around the Palace. Users of the Palace would have to tolerate high levels of noise and disruption over a long period and there would be a level or risk to the continuous running of the business of Parliament. This option is the least predictable in terms of duration and cost. Cost estimate for a ‘do minimum’ approach within this option: approximately £5.7 billion.

Option B: Partial move out - The work would be carried out more quickly if first the Commons, then the Lords, were to move to temporary accommodation outside the Palace. Security and nuisance issues would have to be managed at the boundary between the two zones. This approach would take around 11

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11 Illustrated London News, 17.04.1847 p 245
12 http://www.parliament.uk/about/living-heritage/building/palace/architecture/palacestructure/the-stonework/
13 http://www.restorationandrenewal.parliament.uk/ The Joint Select Committee of Both Houses
years. Cost estimate for a ‘do minimum’ approach within this option: approximately £3.9 billion. Cost estimate for some improvements: approximately £4.4 billion.

**Option C: Full move out** – The activities of both Houses fully vacated from the Palace. This would take the least time and would avoid disruption to Parliament from construction works. Risks to the continuous running of the business of Parliament would be greatly reduced, ‘assuming that sufficient temporary accommodation can be found for occupants of the Palace’. This approach would take around six years. Cost estimate for some improvements: approximately £3.5 billion. Cost estimate for significant improvements: approximately £3.9 billion.

The debate on these options continues - and will likely do for many years to come. It remains to be seen if, at some time in the future, another philanthropically minded MP takes the opportunity to acquire another piece of the Palace to keep ‘Sir William’s Pinnacle’ company. If so that will be for others to record!

### The Pinnacle Comes to Clitheroe

**Pre – WWII**

Steve Ragnall has admirably covered the life and times of Sir William Brass elsewhere in this Project Record and he records in an extract from the Clitheroe Advertiser and Times for Friday June 11th, 1937 that …

‘The Turret or Pinnacle had already been erected in the Castle grounds but Sir William also undertook to finance the building of “a rose garden and surrounding walls”. It will be, he said, “be a permanent memento of the crowning of King George VI and Queen Elizabeth” and, at the same time, give concrete expression to Sir William’s affection for the old borough he represents at Westminster’.

Photos taken after the completion of the Rose Garden show what a well-executed piece of civic landscaping this was. It reflects the formal design approach representative of the inter war period but looking at the number of people in the first of these two images, who can be seen relaxing on the perimeter seating, they are clearly informally enjoying that warm, sunny, rose scented day before the darker days that were soon to follow. Looking more closely at this first image, taken to the elevated, north side, of the Pinnacle, we also get a historic view beyond of the recently built Ribblesdale Senior School (1932) and the surrounding undeveloped land along Littlemoor Road, Queens Road and Turner Street.
‘Before the Pinnacle came to Clitheroe the area, which eventually became the Rose Garden, was the Ladies Bowling Green’ recalls John Latter. John worked in the Parks and Gardens for Clitheroe Borough Council and their successors Ribble Valley Borough Council from 1965 until his retirement in 2015. It was recorded at the time, in the Clitheroe Advertiser and Times, ‘how selfless the ladies were to give up this facility to create the site for the Pinnacle’

An earlier article in the 17 June 1925 edition of the Lancashire Evening Telegraph, unearthed by Shirley Penman during her tireless searches of the local Press archives, recorded the creation of the earlier bowling green from - at that time - an ‘unused tennis lawn’

Post - WWII

Further photographic records show that, sometime during the 1950’s, the 1938 layout was completely redesigned and the diagonal pattern, reminiscent of the Union Flag was completely removed and replaced with a more rectangular geometric plan. John Latter, whose reminiscences follow below, provided a plan of the area, shown here. This corresponds closely with the photo images of the time and enables comparison between the two layouts. The main attraction of this layout was the pond, complete with fountains and fish!

From Clitheroe Borough to Ribble Valley Borough

As a result of the Local Govt. Act of 1972, the responsibility for the Castle Garden’s passed from Clitheroe Municipal Borough Council to Ribble Valley Borough Council in 1974. My own recollection of the Rose Garden was when I, and my then young family, came to live in Clitheroe in the same year and a visit to the Rose Garden and pond was part of our regular circuit of the Castle Gardens. In the early 1970’s these included the Bandstand, the upper and lower Bowling Greens, the Café, the Tennis Courts, the Pitch and Putting Course and a Play Area with swings, slide, roundabout and paddling pool.

Roger Hurst who had been appointed as Park’s Manager for the newly established Ribble Valley Borough Council, who took over responsibility for the Castle Gardens in 1974, recalls that:

“…. the Rose Garden pond was in a dilapidated state when I joined Ribble Valley BC just before reorganisation in 1974. It had become unusable and wouldn’t hold water, despite frequent attempts
to keep watertight, but it did provide a barrier to prevent people climbing onto the monument. I took the remains of the pond away and created a rose bed on the same footprint as the pond in order to dissuade people damaging the fragile stone work. Around 1987 we re-laid the crazy paving. Albert Waites, one of my valued staff, did most of the work in the ‘slacker parts’ of the season shortly before he died. He made a good job of it but, with the passage of time, the Rose Garden became ready for another revamp. About 15 years after I retired, Ribblesdale School became involved and redesigned the whole area using modern materials and I would guess this was about 2005”.

John Latter (see photograph opposite) worked on the Parks and Gardens - for both the Clitheroe and Ribble Valley Councils - for the whole of his working life - from 1965 until 2015. John recalls when starting ‘on the Parks’ the strict regime that Parks’ Superintendent John Hall managed the sixteen gardeners who were employed there then. Though many jobs were becoming mechanised for Municipal Gardeners by this date Superintendent Hall required everything, that possibly could be, be done by hand - with all instructions being handed down by him via the foreman and never directly to ‘the men’. The only mechanisation which John Latter recalls in the early days of his employment there was “an old grey Massey Ferguson and trailer on the back of which the men would ride out up to Brungerley Park when we had to work over there”. The main location and work was focused on the Castle Gardens though and the three Gardeners, Assistant Gardeners and labourers were based in the ‘Steward’s Gallery’ to the north of the Steward’s House, or ‘Castle House’, as John referred to it.

These former outhouses and stables now form Visitor Facilities and Activity Rooms as part of the Educational Unit which the Steward’s House has now become. Here in the Greenhouses, Conservatories and beds which surrounded the Steward’s House ‘little or nothing was bought in to plant’, John Latter recalls, ‘all were grown on from cuttings and seeds and brought on’ to supply the many decorative planting beds which were laid out in those days at the Castle Gardens and Brungerley Park which is alongside the River Ribble to the north side of Clitheroe. John also remembers the constant demand during the season for cut flowers particularly chrysanthemums and carnations - for all of the major civic occasions in the Borough - and also some weddings too - though John was never party to “the ins and outs” of this particular enterprise!
In the open area of land between the former Steward’s House and the mainly single story, Stewards Gallery, there was a ‘Pets Corner’ which survived in one form or another up until 1974. Here John recalls there being rabbits, guinea pigs, golden pheasants, peacocks and even – for a short time – a fox though this was eventually ‘liberated’ by ‘person’s unknown’. A lasting memory after 50 years is being greeted every morning by the piercing cries of the Peacocks, who’s descendants, it is understood, are still be found wandering freely around the Reclamation Centre at the bottom of Henthorn Road.

In 1954 a museum of local and natural history was opened in the Steward’s Gallery. This later moved into Castle House in the late 1970 under the direction of Ribble Valley Borough Council. Between 2008 and 2009 the Castle House and the Stewards’ Gallery underwent a £3.5-million refurbishment and redevelopment and facilities which can be seen today, including the Atrium Café, which now links both buildings, was officially opened on 23 June 2009 by Prince Richard, Duke of Gloucester.

The 2005 Garden Redesign

In 2005 radical alteration works were carried out to the Rose Garden and the last remains of the formally planned Rose Garden were removed. Ribblesdale School were closely involved with the redesigning and John Latter recalls that the initial proposal was to have a water course running alongside one of the paths from the Museum down into the centre of the former Rose Garden. This clearly did not get off the drawing board though the symbolism of the River Ribble has been retained in the pattern of the resin bonded paths and surfaces which now surround the Pinnacle.

Katherine Rodgers, Ribble Valley Borough Council’s Arts Development Officer was closely involved with this project and recalls that:

‘Selected pupils from Ribblesdale High School have worked with a wide range of partners to design and create this beautiful new community space. Through the Lancashire County Council’s Community Design scheme, a local garden designer, David Fisher was commissioned to work with pupils from Ribblesdale Technical College to create a new design layout for the area. The proposal for the area rejuvenated the rose garden creating a fun and vibrant feature for the Clitheroe Castle experience including: a new refreshed planting scheme; site specific floor design; bespoke benches / street furniture and site specific art works depicting the beauty, nature, and geography of our Borough.

The overall design of the Garden was influenced by key Ribble Valley features such as the River Ribble, the hen harrier (the bird that represents the Forest of Bowland Area), Limestone (quarrying history and the special geological sites within the area).

The materials for the project were selected by the steering group to represent the Ribble Valley and the individual designs were developed by the artists in consultation with Ribblesdale pupils.

Major features of the new ‘Community Rose Garden’ included:

A pathway inspired by the River Ribble; A new creative planting scheme; Pebble mosaics created by artist Janette Ireland & Ribblesdale pupils; a custom built pergola; Hen Harrier metal sculpture by Ribble Valley’s Trapp Forge; Limestone Carving by Ribble Valley’s Martyn Bednarczuk and custom designed and manufactured seating.
The project was supported by: Clitheroe the Future; Lancashire County Council; Ribble Valley Borough Council; Aggregates Levy; Myerscough College; Friends of Clitheroe Castle; Ribblesdale Technical College; North West Development Agency and Barclays’.

Sadly, Katherine also records ‘There was a sign created at the time acknowledging the project and its partners which has since disappeared’. Hopefully the recognition of this work in this Record will go some way to address this loss and record a previous community initiative in the Castle Gardens.

The next stage in the history of the former Rose Garden now moves on to 2013 and Clitheroe Civic Society’s own activities to ensure that the Palace of Westminster Pinnacle is retained, conservatively repaired and better interpretation provided about its history and locations. This part of the ‘Pinnacle Story’ is told elsewhere in this Record.