

FIGURE 1
 Sites with early medieval sculpture in Cornwall



CHAPTER I

EARLIER RESEARCH AND METHODOLOGY

EARLIER RESEARCH

Modern interest in the antiquities of Cornwall dates from the sixteenth century when the first topographical surveys of England, region by region, were made. One of the first of these topographers was John Leland whose *Itinerary* was undertaken between about 1535 and 1543. During his tour of Cornwall, Leland travelled extensively, reaching as far as Land's End, and noting castles, abbeys, churches and other buildings, both ruined and standing. However, he rarely mentioned free-standing stones or crosses. Another sixteenth-century antiquarian, John Norden, made a topographical survey of Cornwall around 1584, although this was not published until 1728. Norden did, however, note the stones St Cleer 2 and St Cleer 3. The first mention of St Neot 3 appeared as a figure illustrating the map of Cornwall published in 1748 by T. Martyn.

Meanwhile, the first edition of William Camden's *Britannia* appeared in 1586 and, in the edition of 1600, reference was again made to the stones St Cleer 2 and St Cleer 3. Camden's work was edited, re-edited and up-dated throughout the seventeenth and eighteenth centuries, notably by Edmund Gibson from 1695 and by Richard Gough from 1789. As well as referring to St Cleer 2 and St Cleer 3, Gough added references to St Buryan 1 and Camborne 1, as well as an illustration of the latter. In general, it seems true to say that these early topographers and historians of England in general were not particularly interested in, or perhaps did not always recognise, Cornish artefacts from the first Christian millennium.

From about 1700, the nature of the published work changed. In place of broad surveys of the county, smaller and more localised studies appeared. These were often the work of people living in Cornwall who were interested in the antiquities of their area. Typical of such people are Walter Moyle, 1672–1721, of Bake, St Germans, and the Rev. William Borlase who was rector of Ludgvan from 1722 to 1772. Moyle

collected material in the form of letters to and from his acquaintance and was the first to record the stone at St Blazey (Moyle 1726, 237).

Borlase had a wide range of interests which included natural history and local antiquities, as well as ecclesiastical and political issues of the day. Borlase was the first scholar to record early Cornish stones systematically, although his interests seem to have focussed more on the inscribed than on the carved stones. Nevertheless he was the first person to draw and describe the cross Camborne 4, in 1752–3, when it was still at Fenton-Ia chapel, Troon (Borlase, W. unpub. 1751–8, 81). In his *Observations on the Antiquities* (Borlase, W. 1754), he included St Blazey 1, Camborne 1, St Cleer 2 and St Cleer 3. Interestingly, Borlase did not observe the carved stone built as a threshold step into the second storey of Ludgvan church tower: this was first recorded by Charles Henderson in 1923–4 (Henderson, C. 1957–60a, 313).

The first half of the nineteenth century saw the appearance of further large topographical surveys. Some contained only general comment on the early monuments. For example, a footnote in volume two of Britton and Brayley's *The Beauties of England and Wales* reads: 'Cornwall abounds with these stone crosses. Almost every village contains one, or more; ...They consist mostly of a single shaft of granite, with a round head, and the figure of a cross in relief. Some are ornamented with zigzag carving down the shaft ...' (Britton and Brayley 1801, 494). Fortunately, some authors showed more detailed interest in the carved stones. Daniel and Samuel Lysons, for example, in volume three of their *Magna Britannia*, as well as discussing the crosses already mentioned, were the first to refer in print to Gwinear 1, Lanivet 1, Lanivet 2, Roche 1 and Sancreed 2 (Lysons and Lysons 1814).

The second half of the nineteenth century witnessed a sharp rise in scholarly interest in Cornish antiquities of the early Christian and early medieval periods. This was also a time when many churches were restored and/or rebuilt, and this work brought to



light some monuments which had not been previously known. There was also some general interest in local history, seen for example in support for the meetings and excursions of societies like the Royal Institution of Cornwall, the Penzance Natural History and Antiquarian Society, and the Royal Cornwall Polytechnic Society.

In 1850 Francis Charles Hingston, then only 17 years of age, published his *Specimens of Ancient Cornish Crosses, Fonts, etc.* In this he produced illustrations of 37 crosses of all types, at least eight of which are from the early period. His drawings are of poor quality, but his book was nevertheless an achievement of note. In the decades following, local antiquaries, such as William Iago and J. T. Blight, published extensively on the Cornish stones. Iago was a prolific writer and contributed to many magazines and journals. Many of the drawings of crosses in Maclean's *Trigg Minor* (Maclean 1873; 1876; 1879; see Ill. 358) were apparently in fact done by Iago (Langdon, Arthur 1896, 31). Although Blight's work is variable in its accuracy, he had an extensive knowledge of the area. In his works he discussed almost half the monuments included in the present volume, and was the first to publish some twelve of them.

The outstanding figure of this era is, of course, Arthur G. Langdon (see Fig. 2a, p. 3). His work on the Cornish monuments spans the period from 1888 to 1906, from the time when, with J. Romilly Allen, he published an important article on the early Christian monuments of Cornwall (Langdon, Arthur and Allen, J. R. 1888). His final piece of work on the Cornish stones was a chapter for the *Victoria County History of Cornwall* (Langdon, Arthur 1906, 407–49). Langdon's *Old Cornish Crosses*, published in 1896, is still the standard published work on the subject. It represents the culmination of the gathering momentum of scholarly interest in Cornish antiquities. Over a century after their publication, Langdon's drawings and descriptions in this work remain of great value (see the 'History of Recording' section below).

During the twentieth century, work on the early Cornish monuments continued. C. G. Henderson, 1900–1933, was interested in all aspects of Cornish local history, and amassed a large quantity of information on the carved stones, as his published and unpublished works bear witness. Useful cataloguing work was done by the various contributors to the Parochial Check-lists of Antiquities, published in *Cornish Archaeology*, and by Vivien Russell in her *West Penwith Survey* (1971). G. E. Ellis made a detailed survey of crosses in east Cornwall and published them with good photographs.

A comprehensive survey of all the Cornish crosses was compiled by Mary Henderson and this typescript in three volumes, with a fourth volume of illustrations by Laura Rowe and Roger Penhallurick, is preserved in the Courtney Library of the Royal Institution of Cornwall, Truro (Henderson, M. unpublished 1985).

Work continues to the present day. Charles Thomas (see Fig. 15a. p. 54) has published extensively on Cornish archaeology, art and artefacts of the period, as the thirty-three references to his work in the Bibliography witness. In particular he has highlighted the importance of context in dating the monuments. Susan Pearce continues to publish on the whole of the South-west of England. Archaeological and conservation work continues, with reports regularly published, notably by Historic Environment, Cornwall Council (latterly Historic Environment Service, Cornwall County Council and before that Cornwall Archaeological Unit, Cornwall County Council), based in Truro. New information comes to light when stones are moved, as happened with the monuments St Erth 1, St Neot 3 and Penzance 1. Above all, since 1992, much useful work has been done by Andrew G. Langdon in recording, publicising and conserving the crosses of Cornwall (Langdon, Andrew 1992a; 1997; 1999; 2002; 2005).

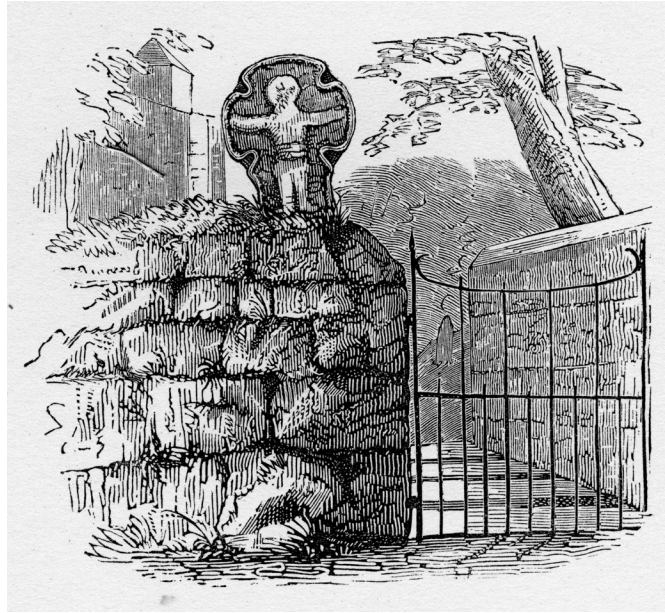
HISTORY OF RECORDING

The recording of early sculptured monuments as relics worthy of antiquarian note and study has been summarised in the previous section. This section looks briefly at the history of their visual representation, as a prelude to 'Recording Methods' below (p. 3) which discusses some techniques used in this volume.

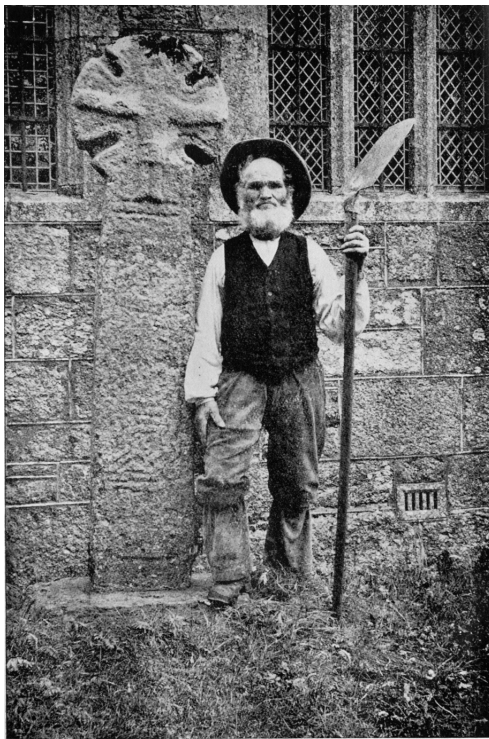
Until the late nineteenth century, illustrations of Cornish crosses with sculptured decoration were drawings, sketches and prints, in which the form of the monument is usually quite well represented, if exaggerated with the kind of artistic license that was common at the time. However the decoration is for the most part poorly depicted as its unusual complexity posed a challenge for artists. Norden's sixteenth-century drawing of the 'Doniert Stone' (St Cleer 2), which is the first known illustration of Cornish early medieval sculpture, is remarkably good: the decoration is represented with ruled lines but the lines lap under and over each other in the correct way (Norden 1728, 58–9 and fig.). The inscription on St Cleer 2, whose letters were presumably easier to understand, is well transcribed (Norden 1728, 58–9



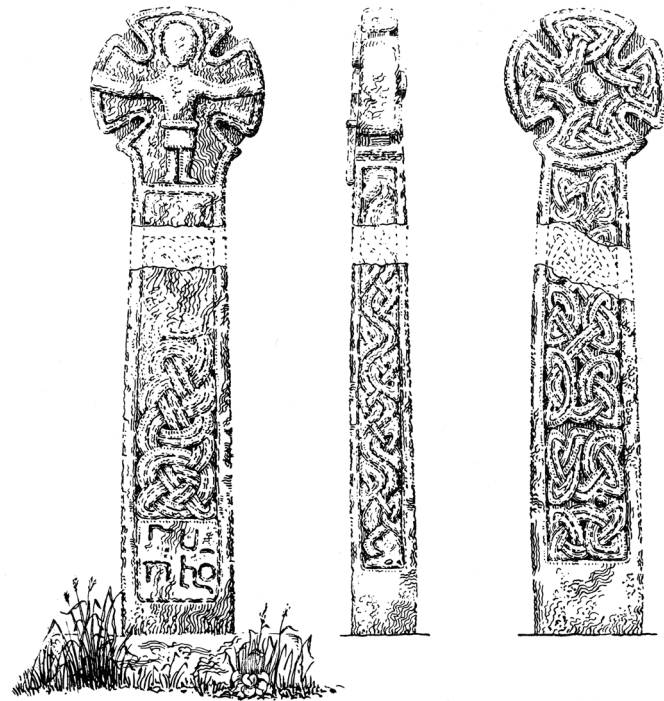
A



C



B



D

FIGURE 2

(a) Arthur G. Langdon at the Colan Cross following its discovery in use as a gatepost in 1908; (b) Sancreed 1 with 'Old John' the sexton, after restoration c. 1912; (c) Sancreed 1, illustrated by J. T. Blight in 1856, when the head was built into the churchyard wall; (d) Sancreed 1, as illustrated by Arthur G. Langdon in *Old Cornish Crosses*, 1896

and fig.) William Borlase's drawing of Camborne 1 is unusual for its time because it not only shows the detail well but, with the thoroughness typical of this scholar, also provides detailed measurements (Borlase, W. 1754, 365 and fig.).

These illustrations stand in marked contrast with Hingston's (1850) child-like sketches of a similar era and represent two extremes of skill and observation, although Hingston was only a teenager when his drawings were made (Cooke 1999, editor's preface). Even J. T. Blight, a skilled artist who made some excellent illustrations of Cornish antiquities, failed on many occasions to address the complexity of the decoration on carved stones. Some of his etchings are quite detailed (for example that of Sancreed 2: Blight 1856, 18) but, like all others up until the time of Arthur G. Langdon, he generally produced only one image of any monument in order to give an impression of its likeness. It was apparently not considered necessary to record the detail on all sides. Blight's work was significant, however, in that he recorded some monuments in their previous locations (Fig. 2c): Blight was working shortly before the main era of Victorian church restorations when so many of the stones were found and rescued from the church walls where they had been re-used as building stone. Collections of 'old' illustrations of Cornish crosses have been made by Cooke for West Penwith and these illustrate well the general style of representation before 1900 (see, for example, Cooke 2001). William Iago was recording crosses at this same time and left a book of pen and ink sketches dated 1873, entitled *Sketches of Various Antiquities in Bodmin and in other places in Cornwall*. The volume was auctioned in Wadebridge, Cornwall in 1986 and eventually found its way to the library of the Society of Antiquaries in London.

In his index to *Old Cornish Crosses*, Arthur G. Langdon makes sixteen page references to Iago's contributions to his publication. Working in Cornwall from about 1880, Langdon's work was a break-through, not only because it was the first fully comprehensive survey of all early Cornish sculpture but also because of his meticulous recording methods. His interpretation and analysis benefited, moreover, from reference to the pioneering work of J. Romilly Allen, a leading light in the analysis of the interlace, key patterns and spirals used to decorate all manuscripts, sculpture, architecture and metalwork of the early medieval period (Allen, J. R. 1903). Langdon, by his own account, made measurements and scale drawings of the stones on site, dug down to reveal the full extent of the stones and any hidden

decoration, and recorded the ornament by means of rubbings, which were afterwards reduced to scale by photography, to ensure accuracy (Langdon, Arthur unpublished 1890; Langdon, Arthur 1890–1, 34). No doubt his professional training as an architect made such procedures second nature, although he admits in a private letter that 'photographing the rubbings to scale was an idea of my own and a friend of mine has done several for me' (Langdon, Arthur unpublished 1890); the friend being identified elsewhere as Dr S. G. Littelljohn of Hanwell (Langdon, Arthur 1896, vii).

Certainly the results of his work are drawings which are remarkable both for their accuracy and their beauty (Fig. 2d, Ills. 359–90). Langdon also designed his own 'crosses' as memorials for friends (see Langdon, Arthur 1996a, 6–7, fig. 2) and many of his images were used by monumental masons of the early twentieth century to create churchyard memorials. Some are remarkably faithful copies of Cornish stones and can in a sense be regarded as the first three-dimensional records of the earlier stones, foreshadowing the latest developments described below.

Langdon was working at exactly the time when Victorian antiquarians were recognising and restoring many stone monuments, not just from church walls but from other ignominious misuse, to the extent that his book contains a chapter on 'the different purposes for which Cornish crosses have been re-used' (Langdon, Arthur 1896, 20–5). This also meant that in several cases Langdon had the benefit of seeing stones fresh and unfettered by the dense lichen and moss with which many are covered nowadays, and with over a hundred years' less wear than we see them with today. This makes Langdon's record all the more important.

The first photographs of Cornish crosses appear in early twentieth-century guidebooks and on postcards; most feature the later medieval wayside crosses but there are a number of the sculpted early medieval stones. For example a number of crosses are illustrated in *England's Riviera* by J. Harris Stone (1912), although it is uncertain whether the prime focus of his photograph of Sancreed 1 is the churchyard cross or the venerable sexton (Fig. 2b). A number of illustrations, like that of the Perranzabuloe cross in Doble's *St Piran*, which shows the base which is now buried in 0.5 metres of sand, reveal additional information or details of the monument (Doble 1931, 55), only subsequently seen when the site was part-excavated in 2005 (Cole *et al.* 2007, 20, figs. 14–16). Some later authors like Hencken (1932, figs. 50, 51, 52) and T. F. G. Dexter and H. Dexter (1938) simply reproduced or copied

Langdon's illustrations in their own work, presumably because it was deemed impossible to do better. When illustrating crosses discovered after Langdon's day, Charles Henderson also copied Langdon's style, for example when illustrating St Neot 2 (Henderson, C. 1929c, 46–9 and fig. on p. 47).

Since *Old Cornish Crosses* was published there have been, as noted above, several comprehensive surveys of the crosses but none which has set out with the aim, as Langdon's did, to illustrate fully all the details of a monument. Even this volume only partly fills the gap, in recording fully only the earliest sculpture.

RECORDING METHODS USED FOR THIS VOLUME

Having mentioned above methods used in the past for representing early sculpture, the methods used for illustrating the sculpture featured in this volume are summarised here, since the last few years have witnessed some remarkable changes.

Most of the Cornish monuments stand out of doors and many are complete large crosses. These factors present interesting problems for recording. Timing visits to acquire photographs which successfully show the detail of the sculpture in oblique natural light is obviously critical; dealing with problems of engulfing trees or bushes and monuments positioned in awkward locations is also challenging. In addition, extensive lichen growth can mask details of decoration.

When work began in 1994 a single-lens reflex camera and black and white film were used, with the majority of the photographs taken in natural light with the occasional addition of flash. Rarely, rubbings were used to illuminate inscriptions or details of sculpture, and to help to decipher the decoration as on the newly discovered cross-shaft at Paul (Paul 2). On the whole, however, this did not prove particularly successful on the rough and coarsely crystalline granite from which most Cornish monuments are carved.

By 2005, however, digital photography had begun to replace film as the standard medium for the illustrations in the Corpus volumes. Digital photography was used in Cornwall, again in natural light where possible, but using floodlights where necessary. The photographs of Padstow 1 and 3, St Tudy 1 and Gwinear 1, for example, were acquired in this way. One of the benefits of digital photography is that both colour and black and white images are acquired, and for Cornwall, where the granite makes fine detailing unusual, the particular impact of the monuments is to see them in

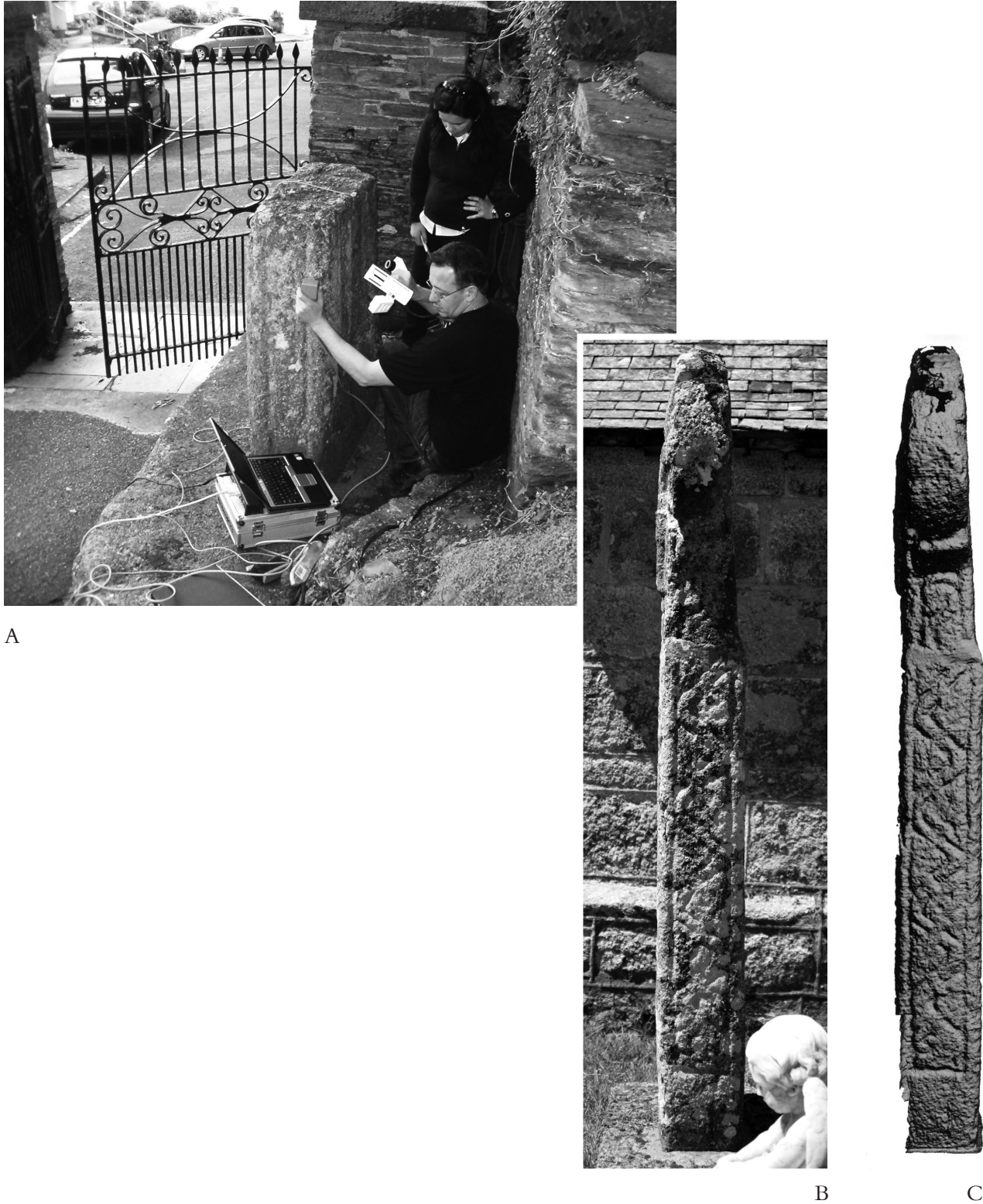
their outdoor setting in the distinctive Cornish light (examples are shown in the colour plates). However faces C and D of Padstow 2 (Fig. 3a; Ills. 166–8) demonstrate a problem encountered with a number of Cornish monuments positioned close to a wall or shrub, where the confined space makes photography unsatisfactory, either because shots have to be acutely angled or can be taken of only small sections of the stone's surface. Good photographic recording of the sculpture on other monuments was ruled out by reason of their very great size or because of surrounding trees (for example Quethiock 1, St Teath 1, Lanivet 1).

LASER SCANNING

To try to solve such problems, experiments in laser scanning were carried out in 2007 and 2008. Initially, trials were made using a high-definition mid-range laser scanner (a Leica HDS3000 scanstation) with the help of Dr Andrew Wetherelt of the Camborne School of Mines. The rapidly-acquired scans of monuments at Lanivet produced good three-dimensional models of the stones, but regrettably showed little detail of the decoration. Any detail seen was from the simultaneously-taken photograph. This is almost certainly because this scanner was not designed for the purpose of recording minute detail.

A second, more successful, experiment was carried out by Dr Thierry Daubos of the National University of Ireland in Galway, and Dr Orla Murphy from University College Cork, using a Polhemus FastSCAN handheld laser scanner (Preston-Jones unpublished 2009). This close-range scanner had already proved successful in scanning inscriptions and Romanesque sculpture in Ireland (Murphy 2006; Murphy 2011; <<http://www.foundationsirishculture.ie/>>, under Profilometry of Medieval Irish Stone Monuments). The method involves making numerous overlapping sweeps across the surface of a stone with a small handheld wand (Fig. 3a). The raw data that this produces, known as a point cloud, can be seen on the laptop's screen as scanning progresses. Compared to the mid-range scanner, close-range scanning is extremely slow, because it may take many sweeps from the instrument to scan the entire monument. However the results proved far more satisfactory, even though the weather at the time of the trial was not ideal for laser scanning. The bright and sunny weather meant that the reflected brightness from the stone, especially from the sparkling crystals in granite or white lichens coating the stone, obscured some of the results.

The data was then processed using RapidForm2004



A

B

C

FIGURE 3

(a) Laser scanning of the cross-shaft Padstow 2; (b) digital photograph of Sancreed 1, face B; (c) laser scan of the same face, showing the animal head at the bottom more clearly

Origin software to construct a three-dimensional model from the point cloud data. The results were then made available for sharing, as PDFs via a website. The processed data was presented in the PDFs in green and yellow shades because this was felt to show up the contrast in the sculpture on the stones best. To make the images more comparable with others in this volume however, they are reproduced here in black and white.

The scan of face *B* of the cross at Sancreed, illustrated in Fig. 3c beside a photograph of the same view, shows that the scan represents the texture of granite and detail of the decoration well, and compares very favourably with the photograph taken in natural light, where the similar background of the granite church and the white lichen on the cross are distractions from the detail of the carving (Fig. 3b). Some of the scans are exceptionally good and show detail of sculpture which has never been adequately recorded since the drawings in Langdon's *Old Cornish Crosses* of 1896: for example the scans of Gulval 1, face *D* and Sancreed 1, face *C* (Ills. 86 and 216).

On the other hand, the scan of face *C* of the cross-shaft St Breward 2 (Ill. 27) was disappointing: the contrast obtained on the scan does not show the decoration particularly clearly, either because the stone is badly eroded or because the scan was done under over-bright conditions. The result only hints at the decoration shown by Langdon's sketch (Ill. 387); however it does suggest that the inner moulding down the sides of the shaft, shown as a plain band on Langdon's drawing, is in fact a step pattern. This is a new and important discovery made as a result of the scanning.

The scan of the inscribed cross-base at St Ewe is the clearest representation ever seen of this inscription (see Ill. 82), other than in some rather interpretative drawings, for example that by Macalister (Macalister 1945, 458–9, no. 480 and fig.). Photographs of the cross-base have proved difficult to obtain because it is located on a roadside verge, surrounded by a fence and dense vegetation.

PHOTOGRAMMETRY by Tom Goskar ¹

A further ground-breaking technique was used to help interpret the images on a stone whose significance was only recognised as this volume was being edited. Photogrammetry allows for high-resolution 3D geometry to be extracted from regular photographs, using a calibrated camera and computer software. A series of overlapping photographs are taken of the object to be recorded, which are then transferred to a computer. Software picks out matching points and tracks them between each of the photos, which along with the known properties of the lens and focal length, allows for three-dimensional geometry to be calculated. The resulting model can then be further manipulated to enhance surface detail using filters, which, for example, can colour according to depth and occlusion. Colour information, although recorded, can be discarded, revealing the surface shape.

The Gulval 2 cross-base (see Ills. 338–41, and compare the night photography in Ills. 88–91) was recorded on a bright sunny day. Each side was recorded with a Canon digital SLR camera with a prime lens. The photos were taken parallel to each side with an overlap of about 80%. Photos were also taken diagonally to provide 'infill' across particularly eroded or damaged areas. The data was processed into a solid 'mesh' giving the appearance of a contiguous surface on screen.

The images shown here are processed using a filter called 'ambient occlusion'. This is where hundreds of virtual 'rays' of light are shone at the surface from different angles: areas which are cut into the surface are statistically less accessible (occluded) to these rays and are displayed as darker areas, as opposed to those which are easily illuminated which are shown in white.

1. The authors are very grateful to Tom Goskar for supplying this text and the photogrammetric images of Gulval 2 (Ills. 338–41), and for allowing them to be reproduced in this volume.

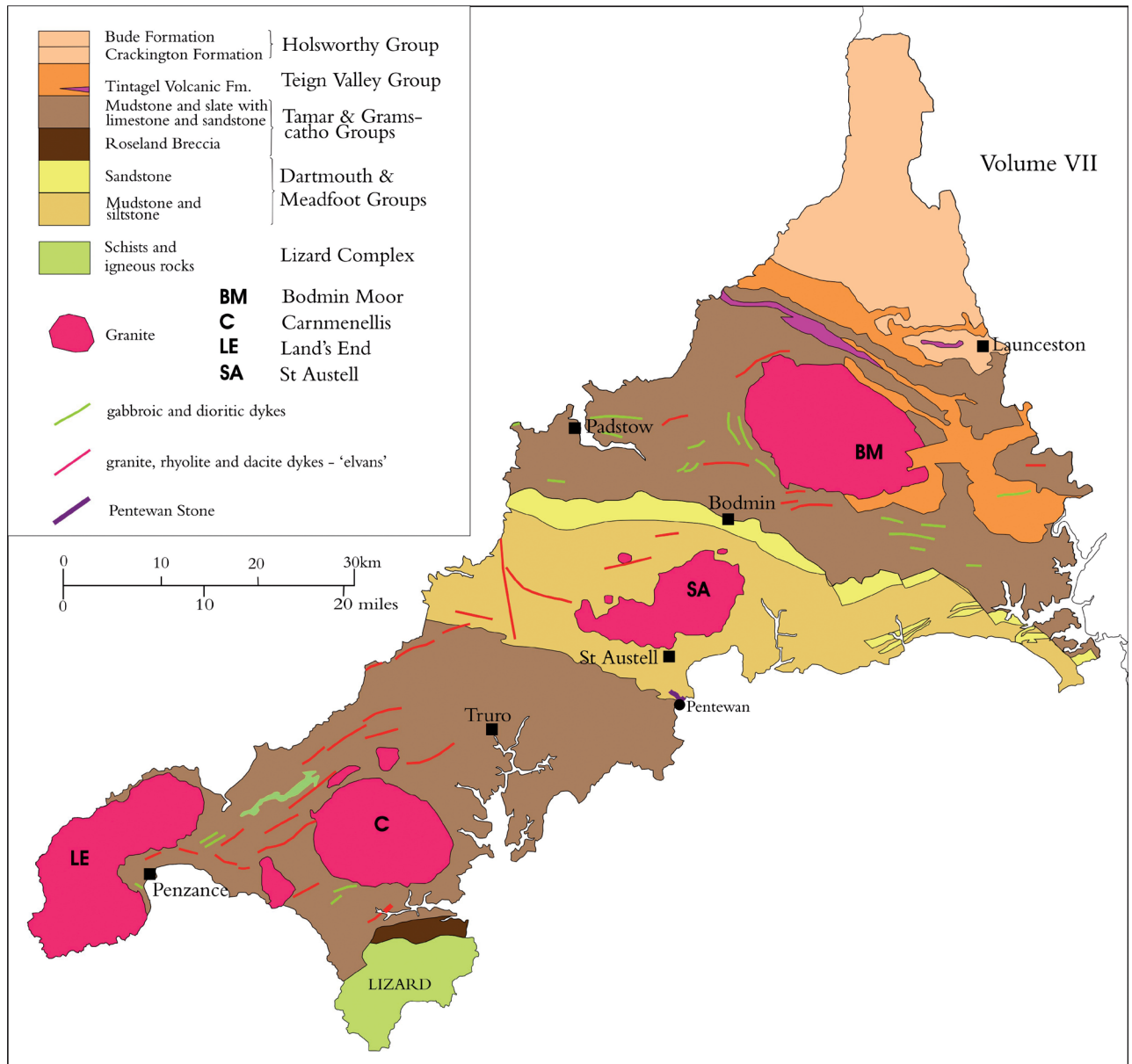


FIGURE 4
The solid geology of Cornwall