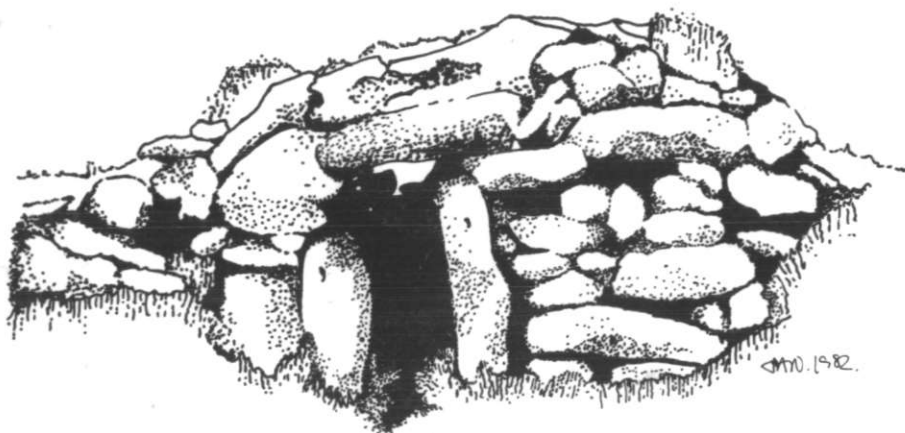


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CORNISH ARCHAEOLOGY

No. 24 1985



HENDHYSCANS KERNOW

COVER: *Beehive hut at Leaze Farm, Bodmin Moor*, by Jacqueline Nowakowski.

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Editorial

It seems that no self-respecting institution can afford to be without a birthday these days. Last year the Cambridge University Press soberly embarked on its fifth century in the weighty business of academic publishing. This year it has been the noisier turn of the 200 year-old 'Thunderer', while in 1986 we even have the promise of official Whitehall junketings to mark a double century in the life of Her Majesty's Stationery Office. Not to be outdone by these ancients, our own more youthful Society has devised an alternative strategy. Instead of celebrating just *one* birthday we find ourselves (at the time of writing) midway between no fewer than *two* successive bouts of festivity: in 1985 the golden anniversary of the foundation of our parent body, the West Cornwall Field Club, and in 1986 the celebrations that will mark the coming of age of this journal and the Cornwall Archaeological Society itself.

As many members will know, the high-point of the 1985 celebrations was a happy pilgrimage to Zennor, the birthplace of the old West Cornwall Field Club, on Saturday 6 July. The day's events (blessed by perfect weather in the midst of one of the wettest British summers on record) included a visit to Maen Castle, the site of one of the Club's early excavations, and a memorable buffet lunch in the grounds of the Wayside Museum. Earlier, the assembled gathering of members and friends (a hundred in all, and aged, we are reliably informed, from 2 to 82) had listened in Zennor Church to an address from our President on the remarkable founders and early history of the Field Club. An amplified version of this characteristically elegant piece of biographical research provides a fitting opening to the 1985 issue of *Cornish Archaeology*. Not least, it contains a salutary reminder of the degree to which archaeology in those days benefitted from professional skills and knowledge brought to the subject from so many walks of everyday working life. Fifty years on, that vital armoury of amateur experience and initiative is mercifully stronger than ever in Cornwall. Long may it continue to flourish.

Elsewhere in these pages, readers will find themselves treated to an unusually varied and stimulating archaeological diet. Ranging from welcome new Mesolithic environmental evidence from Bodmin Moor to Sandy Gerrard and Adam Sharpe's survey of a tin-working site that remained in operation into the 20th century, this year's reports and articles provide an emphatic demonstration of the health and vigour of archaeological enterprise in the county — both as practised by the professional sector and, perhaps most pleasingly, by Cornwall's all-important contingent of 'amateur' scholars and fieldworkers. Of particular note is Paddy Christie's major report on the series of barrow excavations conducted by the late C.K. Croft Andrew on the North Cornish Coast during World War II. To be followed in 1987 by a second report on barrows dug in the Davidstow area, this important paper at last unlocks one of the county's most outstanding but previously inaccessible corpuses of Bronze Age funerary evidence. Anyone who has attempted to reconstruct even one long-forgotten excavation will appreciate the daunting prospect that must have been presented by more than a dozen separate 40 year-old sites. The scale of the task is matched only by our debt to Mrs Christie.

It may at this point be wise to warn members of the Society that next year's issue of *Cornish Archaeology* will, in honour of our forthcoming Silver Jubilee celebrations, take a temporarily different form. Instead of the usual collection of reports and papers, the volume is to comprise a series of specially commissioned articles that will look back over the archaeological achievements of the last quarter century and forward to the part that the Society and its members may expect to play in the work of the next 25 years. Although it will be published as *Cornish Archaeology* 25, the volume is to carry the additional title of *Archaeology in Cornwall 1958—1985* (thereby allowing it to marry up with the 1933—1958 review published in volume 2, No 2 (1957—58) of the *Proceedings of the West Cornwall Field Club*). In addition to serving as a birthday present to the present membership, it is our hope that the book may eventually reach and inspire a whole host of new readers, both within the county and in lands far beyond the Tamar.

Finally, observant readers may by now have noticed (but hopefully only from the small print that adorns our inner front cover) that their journal has recently fallen into new editorial hands. Let them be reassured that this change at the helm is not to be the occasion for abrupt and sweeping changes in the *Cornish Archaeology* that they have come to love and respect. On the contrary, the standards of presentation and academic integrity set by our three editorial predecessors will be honoured to a fault, and we should like, in closing, to thank each of them for the kind and thoughtful guidance that has allowed this present volume to come safely to press.

Editor's note: *Cornish Archaeology* 23, 1984.

We regret that lettering on Figs. 5 and 6 of the Colliford Reservoir report has been unduly degraded in the course of reduction. Subscribers wishing to obtain enlarged copies of these section drawings are invited to apply (enclosing a large stamped and addressed envelope) to the Honorary Editor or to the author, Ms. F.M. Griffith, 9 Colleton Hill, Exeter, Devon.

The Fiftieth Anniversary of the West Cornwall Field Club

CHARLES THOMAS (*President*)

The Society, representing as it does (since 1961) the interests of archaeology of all periods throughout Cornwall and Scilly, has always been conscious that it carries on a very ancient tradition; active field-work, leading to publication, goes back in Cornwall to at least the early 18th century. If the year 1986 is being kept as the Society's (25th) 'Jubilee Year', then 1985 marks the inception of the West Cornwall Field Club, the smaller and older body that gave rise to the enlarged successor.

The half-century celebration was held at Zennor, arguably the heartland of West Cornwall in this respect, on Saturday, 6th July, 1985. In perfect weather, a large gathering took place — including surviving members and former officers of the Field Club, and a range of present members and their families with ages in the first to ninth decades.

Proceedings commenced with a service in the Parish Church, where the Vicar, Reverend Mr. J.B.D. Cotter, welcomed the gathering and offered prayers of thanksgiving, and where there was an address on the theme of (what else?) 'Our Founders'. Members and friends then processed to the Wayside Museum, once Bridge Cottage, where Dr. C.A. Raleigh Radford, the last President (1955–61) of the Field Club, invited Mrs. Joyce Wigley to unveil a plaque of Delabole slate affixed to the front wall. This commemorates the linked foundations of the West Cornwall Field Club in 1935 and the Wayside Museum itself (strictly, from 1937), with the names of Frederick Christian Hirst, Constance Priestley Lloyd (Mrs. Hyslop) and Edward Wigley, successively the Museum's devoted curators. Lunch was then taken, by kind permission of Mr. and Mrs. Richard Williamson and family, in the grounds of the Wayside Museum; and for those who still had energy, Mr. Bret Guthrie, Treasurer of the Field Club 1952–57, led a pilgrimage to Maen Castle, Sennen, where the Club excavated just before, and after, the War.

The text of the address reproduced here has been shortened from its spoken version, and because the occasion was one of happy informality the printed transcript has not been over-burdened with references. The supporting material has been deposited in the Courtney Library of the Royal Institution of Cornwall, Truro, where it may be consulted along with the rest of F.C. Hirst's extensive papers, in recent years sorted and calendared by Mr. P.A.S. Pool.

A note of explanation is called for. As students of oral history are well aware, fifty years is a long time. The course of events outlined below, and details of the characters involved, may all be defective as a historical narrative; there are now insufficient people living to check otherwise unrecorded happenings. In exploring the background and career of F.C. Hirst, I was led — as a labour of love — into a good many months of intensive research and a great many letters, an indication of which is suggested by the *Acknowledgements*, below. Correspondence survives, but some of it is necessarily one-sided, and if the Club's original Minute Book had not been preserved we should know even less of the early days. I believe this account to be as accurate a record as could, today, be compiled, and it is included on that account in the Society's journal, but it is offered with all the reservations just stated.



Fig. 1

Celebration of the West Cornwall Field Club's 50th Anniversary, Wayside Museum, Zennor, 6th July 1985; the commemorative plaque. Mrs. Joy Wigley; Dr. C.A. Raleigh Radford (President 1955–61); Mrs. Florence Nankivell (Secretary 1957–61); Miss Vivien Russell (Secretary 1954–56). Photo: Miss Joyce Greenham, Newquay.



Fig. 2

Dr. Radford; Mrs. Wigley; Professor Charles Thomas (Editor 1953–60, and current President, CAS); Mr. Andrew Saunders (President, CAS, 1970–72). Photo: Miss Joyce Greenham, Newquay.

Around the year 1300, one John de Sherde of Macclesfield married into the family of Disley and acquired the estate of that name in north-east Cheshire. The surname is geographical; from a habitation by the 'skirt' or edge of some feature, or in an isolated tract. At the time of the Civil War, when the spelling had become *Sherd*, one John Sherd moved to a farm at Cawthorn near Pontefract in Yorkshire. His son Nathaniel, vicar of Kirkburton, further modified the surname to *Shirt*. A distribution map compiled from 1985 telephone directories shows the Shirts today, mainly within a north-south twenty-mile belt lying east of Greater Manchester.

Six generations from Nathaniel, George Shirt and his wife Sarah Ann were substantial farmers at Cawthorn, where in 1843 their son, a second George, was born. He was still at home in 1863, whence he travelled daily to teach at Royston Grammar School near Barnsley. The context was Church of England; and in 1863, aged 20, George Shirt joined the Church Missionary Society. From 1864 to 1866 he attended the C.M.S. College at Islington, was ordained deacon, and late in 1866 sailed for western India (being, incidentally, shipwrecked *en route*). His field was to comprise Hyderabad and Scinde, or Sind. In 1868, he married Miss Christiana Stephenson. He was ordained priest in 1869, and by 1875 was in charge of the large C.M.S. station at Karachi.

He emerges, from reports and obituaries, as a person of great ability and a gifted linguist. Fluent in Sindhi, Brahui and other tongues, he was the main compiler of a Sindhi-English Dictionary and the translator (into several languages) of much of the Bible. From 1882 to 1885 he went on leave at Cambridge, where he seems to have bought a house, and as a mature student he took a degree in Oriental Languages and was joint winner (1886) of the Brotherton Sanskrit prize. Returned to India, he died suddenly at Quetta in 1886. The funeral was attended by a full General, and by most of the officers and men of the King's Regiment, Liverpool (8th Foot), eight of whose sergeants bore the coffin. Tributes speak of his attainments, the affection that he inspired among all races, and his bravery — during a cholera epidemic, Shirt alone stayed to minister to Indians and Europeans alike. His powers as a preacher and his standing in both civilian and military circles were stressed. The widow, Christiana, went back to Cambridge. Here she became active nationally in the Mothers' Union movement, travelling the country and giving lectures on India and its people. She died in 1922.

It may be said that the Shirts were hardly conventional missionaries. They were clearly gentry and apparently had private resources. There were eight children, and one can quickly touch upon the four sons. George Stephenson, born 1869 and educated at the Perse School and the Universities of Dublin and Edinburgh, qualified in medicine. He became M.O. and then Assistant Commissioner of the Turks and Cayman Islands, published their standard history, and died there in 1912. Henry Herbert, born 1873, was educated at the Perse and at Trinity Hall; he entered a Roman Catholic fraternity and died as 'Brother Herbert' in 1934. The youngest son, Reginald John ('Jack'), went to Rossall and to Pembroke, Cambridge. He entered the Indian Police in 1901, rose to be Inspector-General for Bihar and Orissa, retired to Surrey in 1934 and died there in 1959.

The Shirts, father and sons, present together that blend of Anglican piety, energy, learning and devotion to the Imperial cause that — as with so many other Victorian families — both brought about and characterised the high point of the British Empire, in its best rather than its worst manifestations. Yet despite the undoubted lustre attached to the name and memory of George Shirt, all four sons between 1895 and 1899 changed their surname by deed poll to 'Hirst' — a simple anagram.

This act, not followed by the four sisters, caused much grief to their mother Christiana, but was explained or excused by the years of teasing about being called 'Shirt' at the great though possibly insensitive public schools they had attended.

The third son, Frederick Christian, was born at Scinde on Christmas Eve, 1874. He too was sent home, firstly to the now-extinct Bath College. In 1893 he went to the Royal Military College, Sandhurst. His progress was marked by exemplary grading in all subjects. He was a noted sportsman; and one close friend, with whom he long kept touch, was another young man who (possibly for different reasons) had been sent into the Army instead of to university — Winston Spencer Churchill. When in 1895 the sons changed their surname, Fred was obliged to seek special permission from Royal George himself, the aged Duke of Cambridge, then still Commander-in-Chief. In February 1895 he was commissioned into the old 96th, the 2nd Battalion of the Manchester Regiment; by no means a smart corps, but one whose depot at Ashton-under-Lyne was in the ancestral Sherd or Shirt home country.

He lost no time in getting back to India. In 1896 he transferred to the Indian Staff Corps, and thence to what was called the Special List for Civil Employment. In India, most engineers (civil and railway), senior medical staff and some administrators were technically on the strength of the Indian Army, even if their entire careers were destined to pass in non-combatant contexts. Fred Hirst joined the Survey of India, a body concerned not just with mapping, but with preparation for major civil works and the enumeration of huge populated districts for revenue purposes. His progress was rapid. He was advanced to Lieutenant; then to Captain in 1909, and Major in 1913. In 1902 he married, with permission, Caroline Fanny, the daughter of one of his superiors, Colonel H.O. Woodhouse, CB., of the Staff Corps. She bore him two sons — Leslie in 1910, and Eric in (probably) 1913. Then sadly she became deranged and spent the rest of her life in asylums.

In India Fred's life was full and productive. He loved all forms of sport, rode much and travelled constantly. From 1906 he was the Director of Surveys for Bengal and Assam, and this was also the year of the first of his many publications (see *Appendix*). During the 1914–1918 war, because of some unspecified injury, he was not accepted for any field command and was obliged to direct training depots. In 1924, aged 50, he retired with the rank of Lieutenant-Colonel. He had usually spent home leaves in Cambridge, where his mother lived. Of his four sisters — Helen or Nellie (who died young), Florence, Ethel and Edith Mary — the last-named in 1916 married George Scales of Valance Farm at Ickleton, just south of Cambridge. Ickleton was where Christiana Shirt was buried in 1922 and where Fred himself was to be laid to rest. Edith and George Scales' daughter Elisabeth (Mrs. Wamsley), who now farms the Valance, is the only surviving grandchild of George and Christiana Shirt. During the War, George Scales' sister Kathleen married, in haste rather than upon reflection, a Canadian called Grant who deserted her and returned to Canada. In Kath Grant, his youngest sister's sister-in-law, Fred Hirst found on retirement a companion and housekeeper for the remainder of his days.

This household, with the two boys Leslie and Eric, moved to Zennor, probably in late 1924. Originally they rented a house in the Churchtown. *Why* they moved there is an unsolved riddle. Society in the area was, however, interesting and stimulating at that time. Up the road lived Arthur Greening the publisher, in a cottage belonging to the late Mr. Willie Nichols (d. 1985); a mile or so further, in the old Porthmeor Methodist Chapel, was the holiday home of Tommy Facer, the much-loved Professor of Music at the University of Birmingham. Down below Eagle's Nest

lurks the cottage where D.H. Lawrence and Mrs. Weekley (Frieda von Richthofen) had so scandalised the Cornish; one might also meet C.E. Vulliamy, descendant of the great immigrant Swiss clockmakers, busy with Cornish antiquities, or in Penzance the prince of booksellers, J.A.D. Bridger, or even the young tutor to the sons of Robert Morton Nance, C.A. Raleigh Radford (who did indeed encounter Fred Hirst in 1924–25).

Archaeology — arising from his own background in ancient history, the ethnography of native India and years of successful field-work for other ends — began to dominate Fred Hirst's retirement. In 1925 he went to the South of France and the Pyrenees, and met and talked with the Abbé Henri Breuil. In the same year, Mr. Greening left for Australia, and Fred and Kath took over the lease of the cottage which they named (again, why?) Tregerant, supposedly Cornish for 'Geraint's home-stead'. There was some sadness. Eric died of a tubercular complaint. The elder son Leslie bought a motor-bike in 1928 and began to attend classes at Camborne School of Mines, became progressively estranged from his father and also departed for Australia. He may still be alive, but was last seen in 1959. Fred and Kath had few relations left, but made visits to Ickleton and the Home Counties.

At Zennor, Fred Hirst was lucky, in the formative phase of his archaeological interest, to be befriended by Richard Vernon Favell of Penberth, a retired Huddersfield doctor, once High Sheriff of Cornwall and Fellow of the Society of Antiquaries. Dr. Favell was generous in lending books. In the Preface to William Copeland Borlase's *Naenia Cornubiae* (London & Truro, 1872; at p.3) Hirst encountered — and I know not from which Victorian philosopher Borlase took it — the phrase he was to adopt, for himself and later for the Field Club; 'Let your reasoning be from the known to the unknown'. A good motto; actually it continues 'and *not* the reverse'. During the late 1920s Fred Hirst was fully occupied. He was a keen gardener (and in 1932 served as president of the West Cornwall Bulb Growers' Association). He roamed over Zennor, Morvah, and the adjoining parishes inland, then still marked by large tracts of unbroken downs; here, he could apply techniques of spatial analysis learnt in India and construct what we would now call models of past geographical and environmental land-use. Observing his, mainly agricultural, neighbours he started to compile notes on the history and anthropology of Zennor parish. Like his father George, Fred Hirst had always been attracted by languages and had enjoyed a sound classical education; he explored Cornish place-names and the obscurer dialect terms of the neighbourhood.

The Big Leap Forward, and in fact the circumstances which led directly to the ultimate formation of our Society, began in 1931. A young American graduate, Hugh O'Neill Hencken, was asked by the Office of Works to dig at Chysauster, preparatory to that site being taken into guardianship. Hirst, who had been corresponding with the few full-time archaeologists of the day (Childe, Wheeler, Reggie Smith), was known to be interested in courtyard-houses and his offer to assist Hencken was accepted. Also in 1931 (February) part of a rough tessellated pavement had been ploughed up at Magor, Illogan. Mainly through the Royal Institution of Cornwall an *ad hoc* Excavations Committee was formed — its first chairman, C.V. Thomas, was the writer's grandfather — and in the autumn Bryan O'Neil, another recent graduate, came down to examine Magor. Hirst was asked by the Committee to act as assistant, and he remained in charge after O'Neil had finished to arrange open days and the back-fill.

In 1932 the Committee, suitably expanded, became the 'Cornwall Excavations Committee' (and, up to 1939, was to sponsor work at such other sites as Castle Dore

and Trelvelgue). Fred Hirst put forward a scheme, based upon his own field-work, the experience of Chysauster and Magor, and the clear need to train a cadre of locally-based diggers; his proposal was to excavate a large courtyard-house village at Porthmeor. This was accepted by the Committee. Funds were raised, Hirst appointed Honorary Director, and the campaign — with some paid workmen, a few volunteers and hired tools — began in the summer of 1933.

This, and the following year's, season constituted a huge success. There was immense publicity, far more than any post-War Cornish dig has either arranged or expected in the local press. A corps of guides, mostly local ladies and school-mistresses, was set up to deal with the throngs of visitors. As a sideline, Fred Hirst entangled himself in the new Old Cornwall movement as 'honorary archaeological adviser'. He was made a Bard; at Roche Rock in 1933, as *Whyler a-bell*, or Seeker From Afar. He also joined the Council of the Royal Institution of Cornwall. Within these organisations his aims were two-fold. He wished to find his cadre of purely local trained excavators (preferably, supported by society funds); and he hoped to counter the then-prevalent and, one must face it, waffling and amateur antiquarianism that preferred ideas of Phoenicians, sun-worship and obsolete speculation to the new concepts arising in European prehistory.

Both these aims failed. The precise, and manifold, reasons need not be explored here, but can be worked out from the correspondence that survives. By spring, 1935, Fred Hirst was with some justification blaming his sponsors for lack of support, lack of new initiative and the almost total failure to recruit local diggers — of the few stalwarts, many were on annual holiday in Cornwall. Hirst made moves to resign as Honorary Director of Excavations, and then did so in August at the end of the third season of Porthmeor. Panic and dismay ensued. Led by two especial friends, Major William and Mrs. Constance Lloyd, the hard core of diggers met privately, on 26th August. Will Lloyd even had a new exercise-book at the ready. A 'Field Club (Archaeological)' was formed, and Fred, who had modestly withdrawn from the occasion, was called back, offered (and accepted) positions as president and director, and the Club was thereby deemed to have been founded. On the 29th, Lloyd as acting Secretary wrote a courteous note to this effect, to George Penrose at the R.I.C., Truro.

The theme of this brief investigation is 'Our Founders' rather than 'The Foundation', and it is not intended to trace the entire story from 1935 to 1939, and then from 1945 to the present day; this could be done, at length, but most of it is available in the Society's publications. It is the persons rather than the deeds that concern us. Firstly, the founder-group and their associated helpers came, not from Cornwall at all, but oddly enough in the most part from either Yorkshire or Kent. The Lloyds, the mainstays behind Hirst, had from 1907 rented Julius Olsson's studio at St. Ives — later, St. Eia's Hotel — and after the War, during which Will Lloyd had been a Major in the Leeds Rifles, Bridge Cottage at Zennor. Will's father, a Royal Navy captain from the Crimea period who resigned in a huff when the Navy went over from sails to steam ('no life for a gentleman', he complained), had married the daughter of an artist working in Cornwall, the American painter W.H. Powell. Will and his wife had inherited large estates in both Yorkshire and Lancashire, but, espousing a form of Christian Socialism after the experience of the 1914-18 trenches, Will Lloyd gave most of his wealth away. He was a poet, musician and Italian scholar and a romantic with independent means. His involvement with Fred Hirst was that of a Celtic visionary who saw the past of Cornwall, indeed of his ancestral Wales, in that rosy light rather than in Fred's new and scientific ways.

Also from the North came the young Liverpool schoolmistress Dorothy Dudley, living in her St. Ives flat, to be Hirst's consistently most faithful disciple; and from their holiday cottage, 'Stella Maris', at Nanquidno over in St. Just, Florence Patchett and Sybil Worthington. Miss Worthington was a non-digger but a most faithful Porthmeor guide, and Florence Patchett — a Yorkshirewoman of great charm and humour — had been raised in the Mortimer Wheeler circle of the 1930s. With minor frictions, because of her inevitable reminders of Wheeler's methodology, she became Fred Hirst's principal site recorder.

The Kent connection was headed by Dr. William Roach from the East Malling Research Institute. A distinguished biochemist, he was an early specialist in trace-elements and plant injection, and was in demand abroad, for example to save the grape harvest in South Africa or the apricots in Spain. He brought various younger men down to Cornwall; Mr. Levy, Mr. Hutchinson, and the Thompson brothers, Major S.G. and Captain A.S. The Thompsons, keen Territorials in the Kent Yeomanry, were generous backers of the work; their father was a steelmaster who had improved the Bessemer conversion process. And there was James Joseph Judge, whom some will remember from the 1950s. Judge, a Dublin man, came to Plymouth about 1910 with R.A.J. Walling, both having been journalists with the Coventry weekly, *Bicycling News*. J.J. was the sub-editor of the *Western Evening Herald*, and then Walling's second-in-command with the old *Western Independent*. A close friend of Lady Astor, he was a philanthropist, founder of the Plymouth Council of Social Service, active worker for that city's poor or disabled and (1926—27) President of the Plymouth Institution. Finally, from closer at hand, we recall Fred Hirst's particular friend Christopher Benson Crofts, Rector of St. Buryan, a person who radiated enthusiasm and kindness; and Miss Ada Williams of Penzance, keen prehistorian and another old India hand in her Methodist Missionary days. I give these details to underline the breadth of experience, indeed in many cases the very real distinction, that the founding circle brought to west Cornwall.

The Lloyds' home at Bridge Cottage, now the Wayside Museum, may have acted as an office but was not the official headquarters. At Higher Porthmeor, near the courtyard-house site, stood a row of three buildings; smithy, four-roomed cottage, and the 1839 Methodist Chapel. In 1911 Professor Thomas Facer bought and renovated the first two. By 1930 this had passed to his daughter Mrs. Fentiman, another Porthmeor guide and helper, who in 1936 purchased the disused Chapel. The Field Club rented this, as a store and headquarters, and the first A.G.M. was held there on 3rd August 1936, as the Minutes reveal. Fred Hirst was thanked 'for securing so excellent a Club House as the Old Chapel'.

This, then, was the founding circle. Lt. Col. Frederick Hirst, as seen only through his publications and twenty-odd thick files of his notes, draft articles and letters, was an outstanding figure. His contemporaries in the other Cornish societies may be excused in retrospect for knowing so little of his past accomplishments, published work, long and disciplined life, high ideals and future potential, since the man himself revealed almost nothing of this outside the circle of his immediate and intimate associates. Is there anything in inherited talent as a factor? Christiana Shirt, his mother, came from the family of George Stephenson, the railway pioneer; she was the inventor's great-niece. Fred's grandmother Sarah Ann (Lindley) at Cawthorn was, I suspect — the dates and localities seem to fit — a daughter of John Lindley, F.R.S., eminent natural scientist and the first professor of botany at University College, London. Through *her* mother, Sarah Freestone from Suffolk, she was

descended from the agrarian reformers, the Cokes of Holkham. The Reverend George Shirt was in no sense an insignificant man.

Given this potential ancestry, it comes as less of a surprise as one goes through Fred Hirst's papers to find that — unknown to most of us — he had mapped out and anticipated virtually every development in Cornish archaeology and the conservation of the past that has since taken place. Check-lists, a network of parish monitors or correspondents, training schemes in the field, an anticipatory Field Monument Warden scheme, local authority liaison, rescue work, publicity, a proper archive, central reporting; all this is there, and in view of its early date the material almost merits a prolonged and separate discussion. The resources of Cornwall in the mid-1930s were not and could never have been equal to the task and the vision, but in the event they were scarcely put to the test. In the winter of 1937 Hirst was unwell. An operation was advised in May of 1938, and he died at St. Mary's Hospital, Paddington, on 20th May aged 63. He was buried near his mother at Ickleton. J.J. Judge supplied obituaries for *The Times* and local papers and attended the funeral. It was Judge, William and Constance Lloyd and William Roach who kept the Club in active service until the 1939–45 war and it was, one suspects, Judge who quietly took the lead and arranged for C.B. Crofts to assume a new presidency when the work began again in the 1940s.

Fred Hirst's other great love was the Wayside Museum, his very personal creation. Here the thread is clear. The aim was to display the Past in the Present, as Sir Arthur Mitchell and others had done in other ways in other parts of the British Isles. The lesson had been learnt in India. Imagine Fred's pleasure in seeing, within some tottering barn, a Penwith wooden plough of a type previously noticed (and in use) only in remotest Assam or Bengal; or of collecting from Zennor and Towednack the obsolescent lap-stones and slick-stones from aged village cobblers, and then excavating precisely similar objects fifteen centuries older at Porthmeor. Deploring the post-War rise of the rural scrap merchants Fred collected, literally as scrap, the vast range of domestic and agricultural blacksmith-made tools that were being thrown out for a trifle. The Museum began on a terrace within his Tregerant garden; between 1st July and mid-September in 1937 it attracted 1,100 visitors. Certain prized exhibits, deemed of national merit, were sent to the Science Museum. In 1937 Constance Lloyd adopted the Wayside and, with Kath Grant's agreement, moved the whole collection to the garden of Bridge Cottage. Enriched, enlarged, conserved, but recognisably rooted in the original Hirst assemblage, it is still there; its beginning and for that matter its continuing educational purpose are intertwined with the genesis of the Field Club. The commemorative plaque draws attention to Frederick Christian Hirst and that most long-lived of his disciples, Constance Priestley Lloyd, whose death (in her 90s) sadly occurred shortly before the ceremony. The third name — Edward Joseph Wigley — marks nearly three decades of care by Ted Wigley, remembered with affection and admiration for his many-sided and gifted personality, and his wife Joy, who fittingly unveiled this triple memorial.

In this brief story of Our Founders, a special last gratitude is reserved for Courtney Arthur Raleigh Radford. In at the start, he nursed the infant Field Club and helped its members, won the respect of Fred Hirst, and (as a 1938 letter from Armorica testifies) declined before the last War a presidency he assumed with such force and distinction after it — most notably in the difficult, but successful, transition to the Cornwall Archaeological Society. It was with universal pleasure that the Society welcomed him to grace the fiftieth anniversary and to preside over the unveiling of the plaque.

Acknowledgements

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I am particularly grateful to the following, for letters, information, first-hand memories and identifications; Mrs. Elisabeth Wamsley of The Valance, Ickleton (F.C.H.'s niece), Mr. John H. Harris, Brockenhurst and Dr. Jefferson Harris, Sherborne (F.C.H.'s cousins by marriage), the late Mrs. Constance Lloyd (Mrs. Gordon Hyslop), Mr. George Lloyd of London N.W.1, Mr. P.A.S. Pool, Penzance, Mrs. George Linfoot (a former Porthmeor guide) and Mrs. Rosalind Lainchbury (grand-daughter of Professor Thomas Facer), Mr. P.A. Wailes of Mawgan Porth and Mr. Crispin Gill, Torpoint. From further afield, help was generously given by Mr. Steve Dey, Plymouth; Mr. J.C. Trewin, London N.W.3; Mr. Brian Self, East Malling Research Station, and Dr. Elsie Ford, now of Maidstone; Mrs. Dorothy M. Owen, Keeper of the Archives, University Library, Cambridge; Mr. M.G.H. Wright, Deputy Librarian, The Royal Military Academy Sandhurst; and especially Miss Rosemary Keen, Archivist, Church Missionary Society.

Institute of Cornish Studies

Appendix

LIST OF PUBLICATIONS OF FREDERICK CHRISTIAN HIRST, 1874–1938

- 1906 *Notes on Traverse Surveying for Revenue Purposes*, Bengal Misc Public Documents, iv + 39pp.
- 1911 *Accounts Manual for the Survey Department of Eastern Bengal and Assam*, Assam Board of Revenue.
- 1911 *Notes on the Clearing and Marking of Boundaries in Eastern Bengal and Assam*, Assam Misc Official Publications.
- 1912 *Notes on the Old Revenue Surveys of Bengal, Bihar, Orissa and Assam*, Thacker, Spink & Co., Calcutta, iv + 87pp.
- 1912 *A Digest of the Original Correspondence upon the Revenue Survey of Jaintia Pargana, District Sylhet, Assam, 1837–40* (with map, and appendix by N.T. Davey), Assam Misc Official Publications.
- 1914 *The Application of Surveying to Criminal Investigation (with maps)*, 1st edn., Thacker, Spink & Co., Calcutta, vi + 24pp.
- 1915 *The Application of Surveying to Criminal Investigation*, 2nd edn., Thacker, Spink & Co., Calcutta, vi + 24pp.
- 1914 *A Brief History of the Large Scale Surveys of Calcutta and its Neighbourhood, 1903–1914* (with portfolio of maps) Bengal Misc Public Documents, ii + 89pp.
- 1917 *The Surveys of Bengal by Major James Rennell, FRS., 1764–1777*, illus. by a new atlas containing important unpublished maps by Rennell, Bengal Secretariat Book Depot, Calcutta, iv + 51pp.
- 1925 *Notes on the Physical Geography of Bengal, 1764–1776. From the writings and maps of Major James Rennell*, Bengal Secretariat Book Depot, Calcutta, 101pp.
- 1931 'Some Property Boundaries in Zennor', *Old Cornwall*, II.2 (Winter, 1931), 23–24.
- 1933 'Notes taken in Zennor and Morvah', *Old Cornwall*, II.5 (Summer, 1933), 22–24.
- 1934 '“Gate” Fields', a note, *Devon and Cornwall Notes and Queries*, XVIII (Jan. 1934), 105–108.

- 1934 'Elements of Cornish Archaeology, I', *Old Cornwall*, II(7) (Summer, 1934), 1-8.
- 1934 'Elements of Cornish Archaeology, II', *Old Cornwall*, II(8) (Winter, 1934), 35-40.
- 1934 *Site at Porthmeor, Zennor; Preliminary Report for 1933*, Cornwall Excavations Committee, Truro, 8pp.
- 1934 'Beehive Hut, or Fogou, at Bosporthenis', *Annual Report of the Royal Cornwall Polytechnic Society*, Falmouth, 3-15.
- 1935 'Scilly Isles', a note, *Devon and Cornwall Notes and Queries*, (Jan. 1935).
- 1935 *Site at Porthmeor, Zennor, Under Excavation in 1933, 1934 and 1935*. Cornwall Excavations Committee, Truro, 8pp.
- 1935 'The Ancient Crosses and Cross Positions of Zennor' (summary), *Journ Royal Institution of Cornwall*, XXIV, 153-4, Truro.
- 1936 'Supposed Iron Age Burial at Mawgan Porth', *Journ Royal Institution of Cornwall*, XXIV, 319-323, Truro,
- 1936 West Cornwall Field (Archaeological) Club; *Notes on two Excavation Sites in Zennor at Porthmeor and Trewey-Foage*. The Club, Porthmeor Old Chapel, Zennor, 8pp.
- 1937 'Excavations at Porthmeor . . . 1933, 1934 and 1935', *Journ Royal Institution of Cornwall*, XXIV, app.II, Truro.
- 1937 'Courtyard House Sites in West Cornwall', *Journ British Archaeological Association*, ser.3, II, 71-97, London.
- 1937 'Penzance Antiquities', note; *Penzance Official Guide*, Borough Council, 1937 edn., p.141, Penzance.
- 1937 West Cornwall Field Club (Archaeological). *Notes upon three Excavation Sites in Zennor; Porthmeor, Trewey-Foage, Kerrow; And upon a Wayside Museum at Kerrow in Zennor*, Penzance, 8pp.
- 1937 *Proceedings of the West Cornwall Field Club*, 1936, 1(1). (ed. F.C. Hirst and J.J. Judge), Penzance:-
 '500 B.C. - A.D. 400', 6-10.
 'Stone Mortaria in West Cornwall', 11-16.
 'List of Antiquities so far discovered on Foage Farm, Zennor, and on lands immediately adjoining that farm', 17-19.
- 1938 (posthumously) West Cornwall Field Club (Archaeological), *Notes upon the Excavation Site in Zennor; Porthmeor*. Penzance, 8pp.
- 1938 (posthumous) *Proceedings of the West Cornwall Field Club*, 1937, 1(2) (ed. J.J. Judge), Penzance:-
 'Future Field Programmes', 5-7.
 'Beach Boulders in the West Cornwall Hinterland', 8-17.
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Redhill Marsh: a Site of possible Mesolithic Activity on Bodmin Moor, Cornwall

M.J.C. WALKER and D. AUSTIN

Pollen-stratigraphic data are described from a shallow peat profile in Redhill Marsh, Bodmin Moor, Cornwall, the base of which is Early Flandrian in age. The pollen diagram traces the course of vegetational change from the initial phase of open heathland, through the expansion of mixed woodland on the uplands, to the replacement of wood and scrub by grass and heathland communities, partly as a consequence of increasing anthropogenic activity. The site is notable for a distinctive woody horizon in the peat profile which consists of birch bark and small birch stems overlain by larger pieces of willow. A Mesolithic age for this wood layer is indicated by both palynological and radiocarbon evidence.

In the summer of 1980, the final stages of an investigation into Medieval landscape changes on Bodmin Moor, Cornwall, were taking place in advance of flooding for the

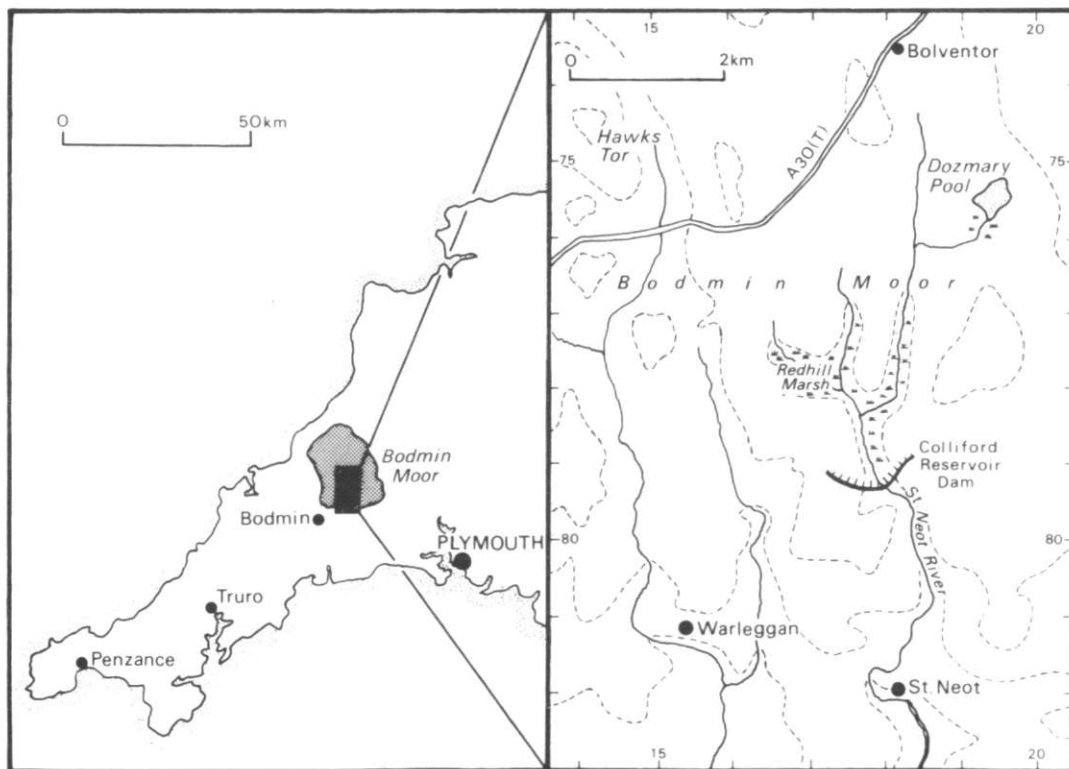


Fig. 1
Location of Redhill Marsh.

REDHILL MARSH, BODMIN MOOR
 Percentage pollen diagram
 (Selected taxa only)

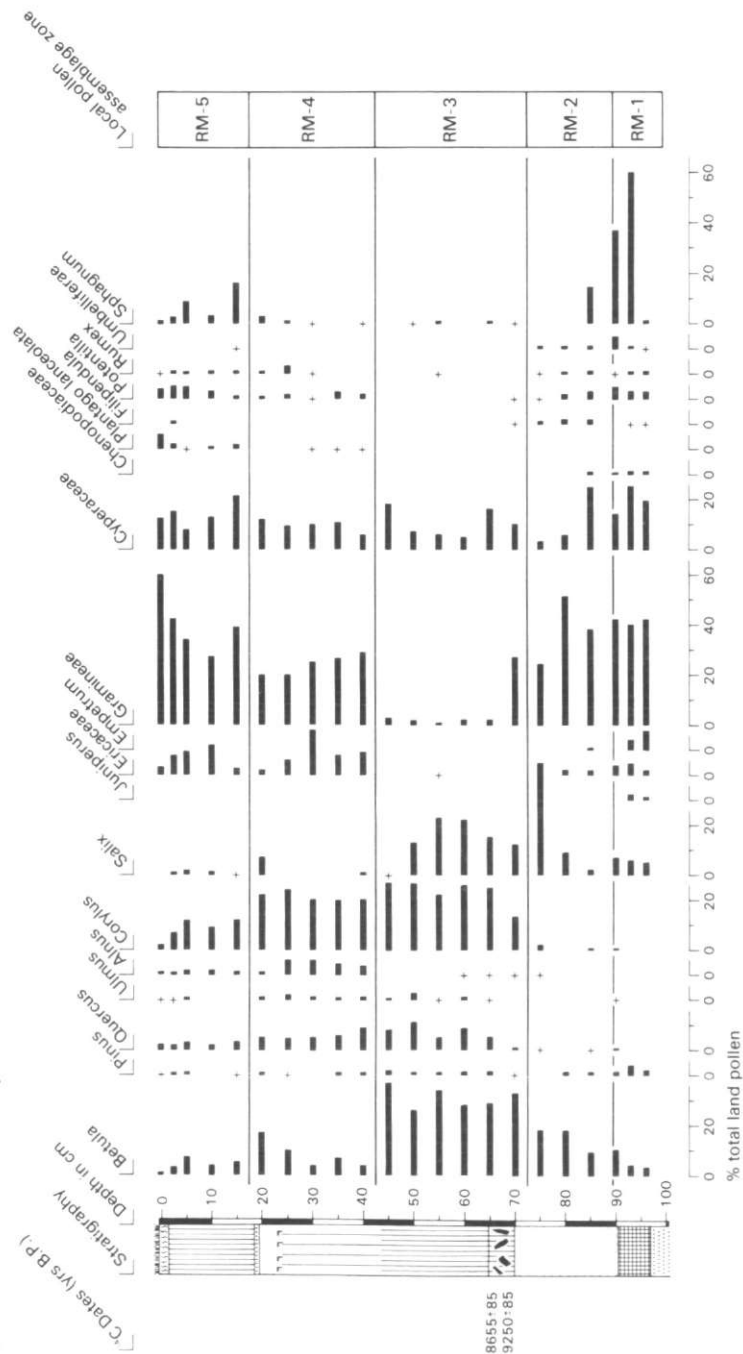


Fig. 2
 Flandrian pollen diagram from Redhill Marsh.

Colliford reservoir (Austin *et al.* in preparation). At that time, a shallow peat profile was discovered which contained layers of wood fragments and birch bark in the lower levels. Pollen analyses from the peat section suggested a Mesolithic age for the woody horizons, a dating which was subsequently confirmed by radiocarbon assays on wood removed from the site following a limited excavation in the summer of 1982. Unfortunately, no further work was possible since flooding followed very soon afterwards and no additional excavation could be organised in time. This paper therefore presents necessarily limited and tentative results which will need further corroboration at some future date when the site is once more accessible. The details of the stratigraphy of the site are recorded along with a description of the early and mid-Flandrian vegetational history of the region, and an outline is given of the evidence for what may be one of the earliest radiocarbon-dated sites of Mesolithic activity in south-west Britain.

The site is located in what was formerly Redhill Marsh in the upper reaches of the St. Neot River (Fig. 1). The valley floor, which lies at c. 240 m. O.D., is relatively broad at this point and is flanked by low-angle slopes. Prior to flooding, an extensive mire covering several hundred square metres had developed in the valley bottom, and the excavation was made approximately 150 m. from the western edge (SX 168721). When the site was discovered in 1980, a pit approximately 0.75 m. by 1.0 m. was excavated through the peats to the underlying mineral sediments, and peat monoliths, each 250 mm. thick, were removed from the eastern face. The stratigraphy of the exposed section was as follows:

- 0—190 mm. Fibrous grass/sedge peat
- 190—195 mm. Coarse sand
- 195—250 mm. Fibrous detritus peat
- 250—420 mm. Fine detritus peat
- 420—650 mm. Highly-humified amorphous peat with some wood fragments near the base
- 650—700 mm. Very fine amorphous peat/organic mud with large numbers of wood fragments (*Salix* and *Betula*) and layers of *Betula* bark
- 700—910 mm. Fine amorphous peat/organic mud
- 910—970 mm. Fibrous clay-gyttja
- 970 mm. Coarse sand/growan

In the laboratory, samples were abstracted from the peat monoliths at 50 mm. intervals (although a slightly narrower sampling interval was employed near the top and base of the profile) and prepared for pollen analysis using conventional procedures (Faegri & Iversen, 1975). Pollen and spores were classified according to the criteria of Moore & Webb (1978) and a count of 300 land pollen was achieved at all levels. Over 70 taxa were identified in the Redhill Marsh profile but only the principal elements of the pollen spectra are presented here (Fig. 2).

The pollen diagram can be divided into the following local pollen assemblage zones (PAZs):

- RM-1: Gramineae-Cyperaceae
- RM-2: Gramineae-*Betula*
- RM-3: *Betula-Corylus-Salix-Quercus*
- RM-4: *Corylus*-Gramineae-Ericaceae-*Alnus*
- RM-5: Gramineae-*Corylus*-Ericaceae

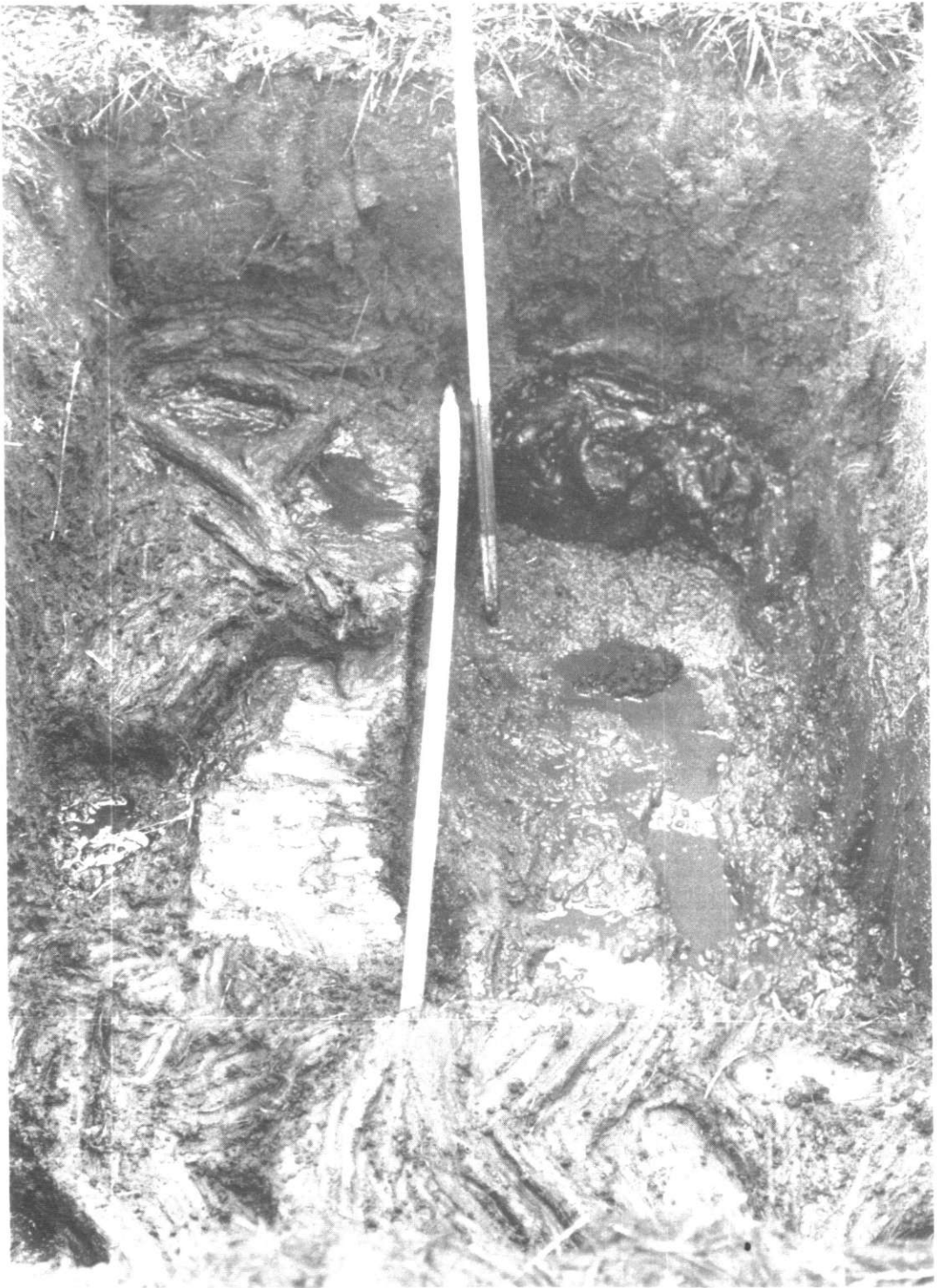


Fig. 3

The trench opened in 1982 showing the layer of birch bark overlain by large pieces of Salix wood. Subdivisions on the ranging rods = 50 cm.

The basal pollen assemblage zone (RM-1) reflects an open grassland landscape with isolated stands of *Salix* and *Juniperus* and a limited local presence of heathland communities of *Empetrum* and Ericaceae. Some tree birch may have also been present in the area, but the *Pinus* pollen recorded in the lower levels of the profile are most probably of long-distance provenance. Zone RM-2 is characterised by a rising *Betula* curve, reflecting the colonisation of the upper reaches of Bodmin Moor by tree birch; by the disappearance of *Juniperus* and *Empetrum* from the pollen spectra; by the marked expansion of willow shrubs in the vicinity of the site; and by the first appearance of *Corylus* and *Quercus* in the diagram. Areas of bare or disturbed ground may be reflected in PAZs RM-1 and RM-2 by the occurrence of Chenopodiaceae and perhaps also by *Rumex*, while wetter habitats are indicated by the relatively high frequencies of Cyperaceae pollen and *Sphagnum* spores, and by the presence of tall herb communities of Umbelliferae and *Filipendula*. Comparable pollen assemblage zones were recorded in the nearby site of Hawks Tor (Fig. 1) where the basal Gramineae-dominated assemblage was dated at 9564 ± 180 b.p. (Brown, 1977). An early Flandrian age is therefore inferred for the base of the Redhill Marsh profile.

Pollen assemblage zone RM-3 is dominated by woody plants, particularly *Betula*, *Corylus* and *Salix*, although *Quercus* also forms a significant component of the pollen spectra, while *Ulmus* and *Pinus* are recorded throughout. This zone clearly reflects the establishment of birch and hazel wood and scrub on the uplands, with scattered stands of oak and perhaps also a limited occurrence of elm and pine in sheltered localities. As has been pointed out elsewhere, however, the extent of woodland cover on the higher slopes would have been restricted by exposure to strong westerly airstreams that dominate the weather on the Moor (Brown, 1977; Caseldine, 1980). At Hawks Tor, the *Corylus* rise has been dated to between 9295 ± 180 and 9061 ± 160 b.p. while at Dozmary Pool, some 2-3 km. north-east of Redhill Marsh (Fig. 1), the first appearance of *Ulmus* pollen was dated at 8829 ± 100 b.p. (Brown, 1977).

The boundary between PAZs RM-3 and RM-4 coincides with a stratigraphic change from well-humified to poorly-humified sedge peat and, in view of the abrupt changes in a number of the pollen curves, may reflect a depositional hiatus. Similar unconformities, which have been interpreted as indicating the cessation of bog growth due to drier climatic conditions, have been recorded at other sites on Bodmin Moor (Brown, 1977). Renewed peat growth in Redhill Marsh is accompanied by an abrupt fall in *Betula* values, by a gradual decline in *Quercus*, by the appearance of *Alnus* and by a marked increase in counts for Gramineae and Ericaceae. These palynological changes reflect the expansion of grass and heathland and the decline in areas of woodland cover, particularly birch, on the high moorland, although birch and *Salix* do expand (apparently at the expense of heathland) towards the end of the zone. The beginning of the *Alnus-Calluna* episode at Dozmary Pool has been dated at 6451 ± 65 b.p.

A further depositional hiatus may occur at the boundary between PAZs RM-4 and RM-5 where a band of minerogenic sediment is recorded in the lithostratigraphy. The uppermost pollen assemblage zone reflects the progressive disappearance of wood and scrub from the uplands of the moor and its replacement by grass and heathland communities, although stands of hazel scrub and scattered copses of tree birch remained throughout most of the period. A human influence on the vegetation

pattern may be inferred from the occurrence of such pastoral indicators as *Plantago lanceolata* and by the occurrence of low frequencies of *Cerealia* type pollen in the upper levels of the profile.

While the pollen-stratigraphy of Redhill Marsh is of interest in that it provides a record of early and mid-Flandrian vegetational changes on the uplands of Bodmin Moor which augments previously published records, an important additional feature is the layer of wood fragments at a depth of between 0.65 m. and 0.7 m. in the profile. Small stems of *Betula*, up to 100 mm. long, were recovered from the original monolith along with larger pieces of *Salix* wood and fragments of birch bark. In view of the concentration of pieces of wood and bark within these horizons, the fragmented nature of the birch stems, and particularly in the light of the apparent early Flandrian age of the woody layers (suggested by their position in the pollen profile), the site was re-excavated in the summer of 1982. On this occasion, a larger trench measuring c. 1.0 by 1.5 m. was opened and the wood layer systematically exposed. This was found to consist of the remains of roots and/or branches of *Salix* up to 0.5 m. in length overlying a horizon of birch bark which appeared to have been laid flat in contiguous and parallel strips (Fig. 3). This, in turn, overlay a layer of *Betula* stems and twigs, typically 50 to 100 mm. in length. Two of the large *Salix* pieces were removed from their positions immediately overlying the birch bark layer and submitted to the radiocarbon laboratory at the University of Glasgow for dating. Results of 8655 ± 85 b.p. and 9250 ± 85 b.p. (GU-1739) were obtained, thereby confirming the age of the woody horizons that was inferred from the palynological evidence.

excavation were rounded at the ends and resembled cut wood, no conclusive evidence of working could be established. Nevertheless, it is difficult to explain the juxtaposition of the birch fragments, birch bark and *Salix* wood and, in particular, to account for the flat strips of birch bark, in terms of natural processes. Hence, an anthropogenic influence seems likely. Certainly it is tempting to link the abrupt fall in *Salix* pollen at the RM-2/RM-3 boundary immediately below the wood layers to the considerable quantities of *Salix* wood uncovered in the peats and to infer some local clearance of willow scrub from around the site. On the other hand, the reasons for such local clearance cannot easily be inferred from the evidence available here and, indeed, the function served by the woody horizons, particularly the layer of birch bark, is equally unclear.

The palynological and radiocarbon evidence indicate that this wood layer dates from the ninth millennium b.p. In view of the fact that the *Salix* wood overlies the birch bark layer, the radiocarbon dates must, moreover, be the most recent for the horizon, thereby suggesting an early Mesolithic age. Artifact scatters of early Mesolithic age have been reported from several sites on Bodmin Moor, including those near Crowdy Reservoir (Trudgian, 1977a, 1977b), and from the area around Dozmary Pool (Wainwright, 1960; Jacobi, 1979). Although no radiometric dates are available from these sites, typological comparisons between the microliths from Dozmary Pool with the radiocarbon-dated microlithic assemblages from Thatcham (Mellars, 1974) suggested an age 'within the first half of the eighth millennium b.c.' (Jacobi, 1979, 53). Moreover, the evidence points towards exploitation of the moorland by hunting groups before the local establishment of birch woodland. The woody horizons within the peats in Redhill Marsh could therefore be viewed in the context of the early Flandrian occupation of the uplands of Bodmin Moor, perhaps as part of a seasonal pattern of resource exploitation (Jacobi, 1979), by Mesolithic

hunter-gatherer communities. Hence, a function in some way related to these hunting activities, for example a platform for wildfowling around the marshland peripheries, might tentatively be postulated.

Acknowledgements

We are grateful to Sandy Gerrard for assistance with the fieldwork; to Astrid Caseldine for her identifications of the wood from the site and for her comments on an earlier draft of this paper, and to the Pantyfedwen Fund of St. David's University College, Lampeter, for funding the radio-carbon dates.

St. David's University College, Lampeter

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Water pipe trench to St Mawes

In the summer of 1985 a new pipe line was laid to bring an improved water supply to St Mawes. Digging of the trench revealed matters of archaeological interest at the following grid references:—

SW 8626 3674. Scatter of nine flints on the surface, including two thumbnail scrapers, one notched point and one notched flake.

SW 8852 3782. Base (140 mm diameter) of an urn or other earthenware vessel (burnished), lying at a depth of 200 mm below grass. The top of the vessel had apparently been sliced off during ploughing. Made of a coarse gritty material which appears to be gabbroic.

SW 8441 3352. Pit measuring 750 mm in diameter by 500 mm in depth when it appeared below 400 mm of disturbed soil. The pit had been lined in a few places with slates set in the side. It had been filled in with 25 large slate slabs measuring on average 300 mm by 200 mm, and from 30 to 70 mm thick. All these had been most carefully and closely packed on their ends within 10° of the vertical. Three pottery sherds of general Iron Age appearance were found in association with the top stones.

SW 8491 3498. A group of three stones, and another of two stones, covering lengths of 0.90 and 0.50 m respectively, had been laid as if to form the bottom course of a circle. Within the presumed circle, which would have had a diameter of 6 to 8 m, were two post-holes in appropriate positions (if this was indeed a hut), one of which had a broken piece of a quern or other rubbing stone, made of a fine-grained granite, which served as a packing stone. Seen together these features suggested the remains of a possible hut.

SW 8418 3312. A slate-stone hut, probably rectangular, measuring 3.5 by 2.5 m, had post-holes within the wall at the three corners that remained. It appeared that the shilley floor had been worn down in use and had eventually undermined the walls and brought about their collapse. Part of the walls consisted of smallish slates set in herring-bone fashion, as is seen in Cornish hedges today. It is possible that this showed a method of repair rather than of original construction. Indeed the latter

would possibly have had to be more substantial, as was also suggested by the larger stones lying within the hut where they appeared to have fallen. Coarse pottery of little diagnostic value, but which could well be of Iron Age date was found in quantity. There were also some mussel, limpet and oyster shells, and part of a granite mortar. It is hoped to obtain a date from the charcoal in one of the hearths. A stone-filled gully, only 150 mm deep below 300 mm of topsoil, ran parallel to the SE side of the hut for a distance of 5 m.

SW 8909 3812. The water pipe trench cut across a 16.5 mm deep (below grass) gully, at the bottom of which was burnt clay and charcoal as well as one sherd of coarse pottery and two large sherds of fine burnished pottery, one of which carried a cordon and closely resembled the ovoid jar (Type Q) from St Mawgan in Pydar (*Archaeological Journal* 113, 1956, 66, No 112). Nearby there were thick bands of yellow clay and signs that the clay may have been quarried. A pottery kiln in the neighbourhood would seem to be a possibility although no wasters were seen on the surface.

SW 8823 3766 to SW 8827 3767. Near the Iron Age Dingerein Castle aerial photography had suggested a ditch, possibly that of a dependent enclosure. In fact there was a ditch of more than 40 m length, which was 0.65 to 0.85 m deep and 2 m wide when seen at 0.40 m below grass. Its direction, however, could not be reconciled with a dependent enclosure, and its purpose and date must remain uncertain.

SW 8515 3530. An exceptionally large hedge was noticed, 3 m wide at the bottom, with outward stone facings which, in their lowest course, consisted of large water-worn stones evidently specially brought up from some valley bottom or from the sea shore. It would seem that this hedge is likely to be one of the earliest mediaeval boundaries in the area.

Further details of the above are held in the files of the Cornwall Archaeological Unit, Truro.

St Mawes

T.P.F. Trudgian

Barrows on the North Cornish Coast:

Wartime excavations by C.K. Croft Andrew 1939–1944

PATRICIA M. CHRISTIE

With contributions by FRANCES HEALY, FIONA ROE
SHEELAGH STEAD, CAROLINE CARTWRIGHT and JOHN EVANS

Nine barrows on the north Cornish coast, between Portreath and Crackington Haven, were excavated by the late C.K. Croft Andrew on behalf of the Ministry of Works Ancient Monuments Inspectorate between March 1939 and March 1944 in advance of airfield construction and other wartime threats. The results of these excavations are now published from the surviving notes and finds and give valuable information on the structural diversity and ceramic range within the barrow groups to which the sites belong.

GENERAL INTRODUCTION

The strategic position of Cornwall during the 1939–45 war caused the peninsula to be turned into a virtual aircraft carrier, and this involved the construction of many new airfields and ancillary military installations over a period of more than four years. Since the county is immensely rich in archaeological, and especially prehistoric, remains, and since the airfields were constructed on moorland and long-undisturbed agricultural land, the potential threat to archaeological sites can be imagined.

It is perhaps hardly surprising that in the early months of 1939, with war preparations already well advanced, it was found impracticable to set up more than an emergency 'rescue' operation as work started on the first new airfield, at St. Eval. Yet as airfield followed airfield over the next four years, this was to develop into a remarkable campaign, during which C.K. Croft Andrew, on behalf of the Ancient Monuments Inspectorate of the Ministry of Works, proceeded single handed to examine some 40 sites. About 30 of these were then excavated and most of them proved to be barrows. The main exception to this was the excavation at Carnanton of a medieval cemetery, threatened by the airfield at St. Mawgan, excavated in 1943 and recently published in *Cornish Archaeology* (Preston Jones, A. 1984).

Unfortunately, none of Croft Andrew's other wartime excavations have ever been published. All that has been known of this mammoth campaign, carried out mainly between February 1939 and July 1942, is contained in a lecture given in Plymouth on 2nd September 1945 and printed in the Annual Report of the Plymouth Institution (Croft Andrew, 1945). After the war the *Antiquaries Journal* carried a report by the then Chief Inspector on War and Archaeology in Britain (O'Neil, 1948) but this included only brief notes on Croft Andrew's work in Cornwall. Despite repeated attempts over the last four decades to extract reports, or at least

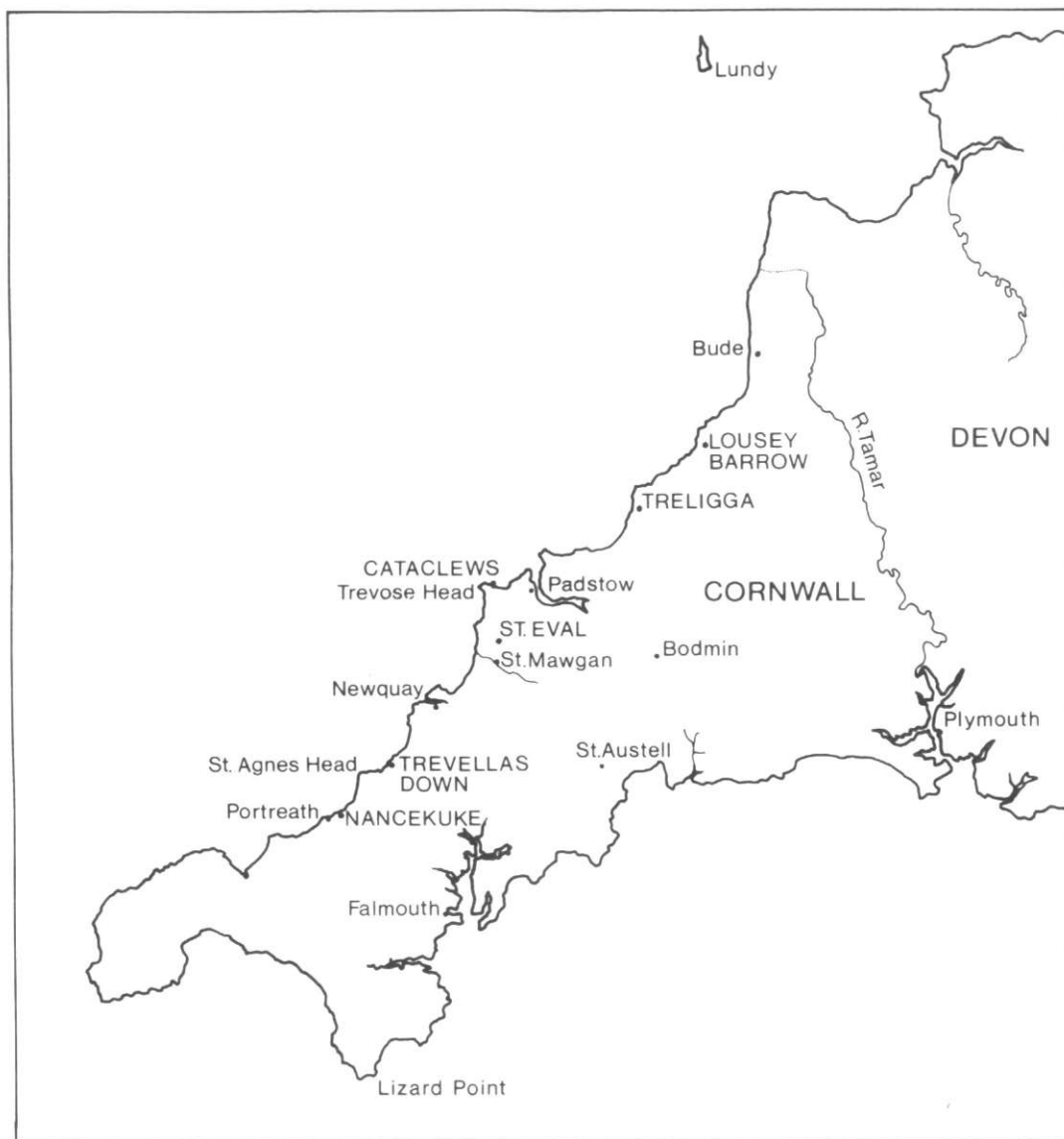


Fig. 1
 Map of Cornwall showing location of sites excavated by C.K. Croft Andrew.

the material, both finds and excavation records remained with the excavator until his death, when they finally came into the hands of the Inspectorate. The present writer, whose interest in Cornish barrows was known, was then charged with the publication of what in fact comprises the largest corpus of Bronze Age barrows excavated in Cornwall since the 19th century.

As will be seen in the individual reports, the excavation record had suffered badly over the intervening years; surviving records are often sadly inadequate and the finds themselves, mostly unmarked, with labels barely legible, had become muddled. To add to the confusion, the excavator's house was burgled and boxes disturbed shortly

after his death. The task of collecting the material together and putting it into some sort of order before handing it over to the writer was carried out by Mrs. Evelyn Palmer of the Ancient Monuments Inspectorate, to whom thanks are due.

The writer owes a special debt of gratitude to Dr. Raleigh Radford, who knew Croft Andrew well and visited some of the early barrow excavations. His information, and his reminiscences of the man and his work — and indeed of the impact on archaeology of the early years of war — have been most useful in helping to bring Croft Andrew's notebooks to life, and in assisting the writer in her attempt to put herself into the shoes of the excavator, after a gap of some 40 years.

The distribution of excavated sites falls naturally into two main geographical groups dictated by the wartime threats: one coastal, one inland and moorland. The first part of the corpus, and the subject of this paper, is concerned with the coastal sites, from Portreath in the southwest, to near Bude in the extreme north, all but one lying on the Devonian slates locally known as killas or shillet (Fig. 1). The second part, to be published later, will deal with a large barrow cemetery and other sites which were covered by the wartime aerodrome on Davidstow Moor which forms part of the north side of Bodmin Moor.

The report which follows deals with each barrow of the coastal group in the order in which the site was dug, starting with St. Eval in 1939 and ending with Cataclews in 1944. Each site is described in a separate excavation report, with specialist analyses of finds and samples. Full discussion of the pottery and lithic material from the sites is given after the individual reports, followed by a general discussion of the main features of these coastal barrows which deals with the group as a whole and attempts to place the sites in the wider context of Bronze Age Cornwall.

For most of the sites described below Croft Andrew's method of excavation was the standard practice of laying out the North-South and East-West axes of the barrow mound with strings; two trenches, usually 5 or 4 feet wide, were then dug alongside the strings to give two complete cross-sections of the mound at right angles to each other. The original trenches were usually then expanded and the quadrants cleared. After measuring the sections, the baulks were cut back completely or partly, and the central area excavated. In certain cases this standard practice had to be modified, as in the case of Treligga 7 and 5 and Lousey Barrow.

Note

Croft Andrew has been abbreviated to CKCA throughout and all direct quotes from his notes or from his published account are put in single quotation marks. SMR numbers refer to the Sites and Monuments Register maintained by the Cornwall Archaeological Unit.

Chronology is expressed in radiocarbon years bc. Calibrations to approximate solar years BC are derived from the Clark (1975) curve.

Illustrated pottery is described in Table 4; illustrated lithic material in Table 5. Dr. David Williams' report on the petrological examination of pottery from both the coastal barrows and those on Davidstow Moor will be published with the second report.

The few sherds of later pottery from Treligga will be included in the report by C. O'Mahoney on the medieval and post-medieval pottery from Davidstow Moor, where a larger amount of similar material was found.

While the main specialist reports follow the excavation report for each site, some of the information which is too slight to warrant a separate report has been incorporated into the text.

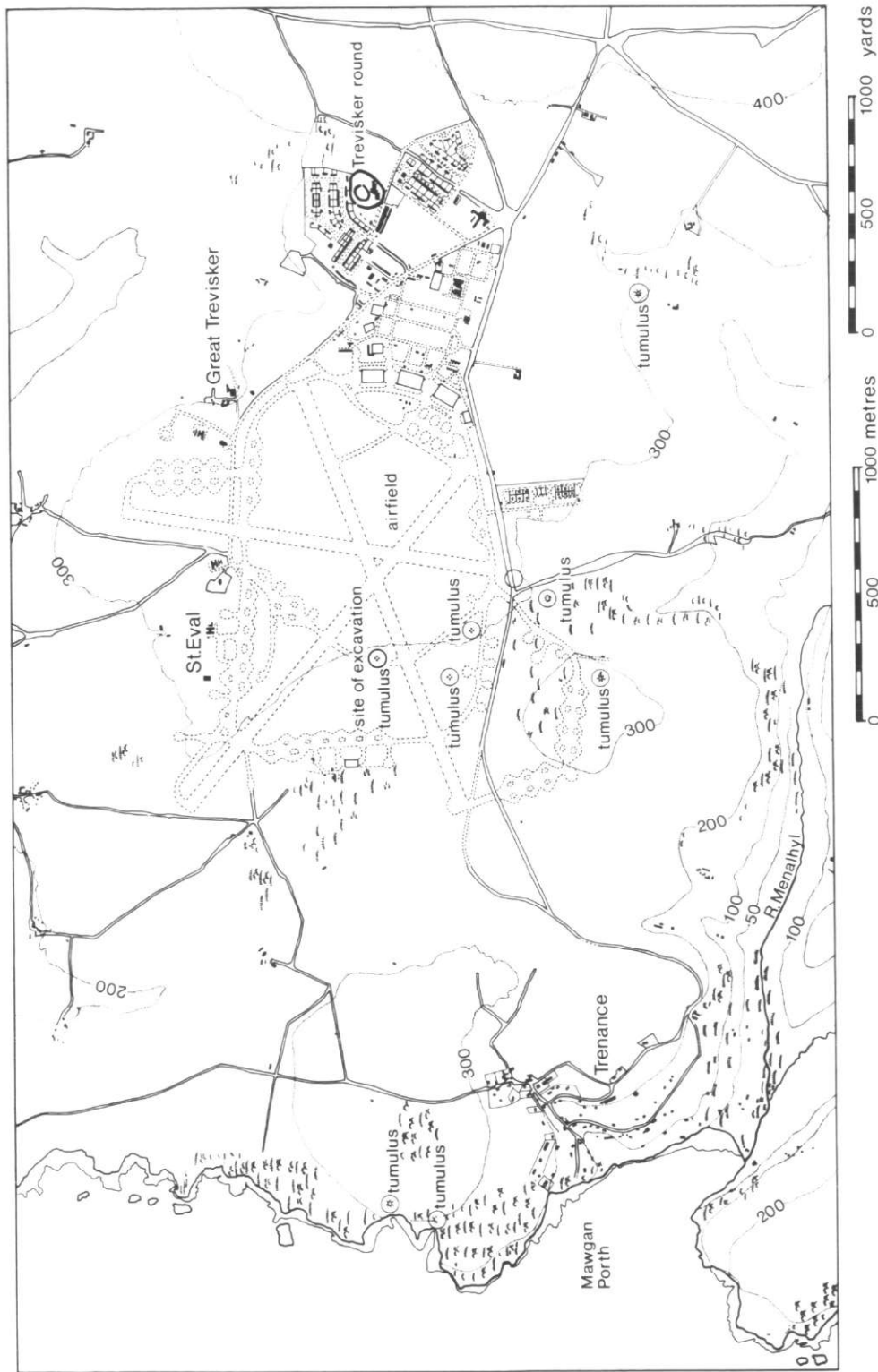


Fig. 2
St Eval: location map.

ST. EVAL AERODROME
NGR: SW 8688 6857 SMR: SW 86NE, 10

Introduction and Summary

The site lay at a height of 300 feet, south of St. Eval church (Figs. 2—3) on land which had been earmarked to carry a new RAF aerodrome. It was the most northerly of a widely spaced group of 5 possible barrow sites, all of which had been previously damaged or destroyed (SMR SW 86 NE 11, 12, 15, 16). A large quartz menhir lies re-erected on the parish boundary to the south-east (SMR 86 NE 49), while one mile to the east is the important Bronze and Iron Age settlement of Trevisker (ApSimon and Greenfield, 1972).

The excavation was carried out in February and March 1939 and was the first barrow excavation to be undertaken in Cornwall under the 'war emergency' arrangements. In the only published account of his wartime work (Croft Andrew, 1945) the excavator dismisses the site in a few lines:

Originally 80 feet in diameter, but only 18 inches high at the time of examination, the mound proved to have lost the whole of its funeral deposit . . . when a field hedge was built through it. The only notable fact that emerged from a brief excavation was that the ceremonial floor under the barrow had been dressed with crushed white quartz.

The site lies on Devonian rocks of Lower Old Red Sandstone, locally known as shillet or killas. The decomposed surface of these rocks gives a yellow or red clay subsoil, often very clean and bright. The soil which formed on these slates and shales both at this site and the others described below, was probably a brownearth (Clayden,



Fig. 3
St Eval: general view looking north, with church in distance.

ST. EVAL AERODROME BARROW 1

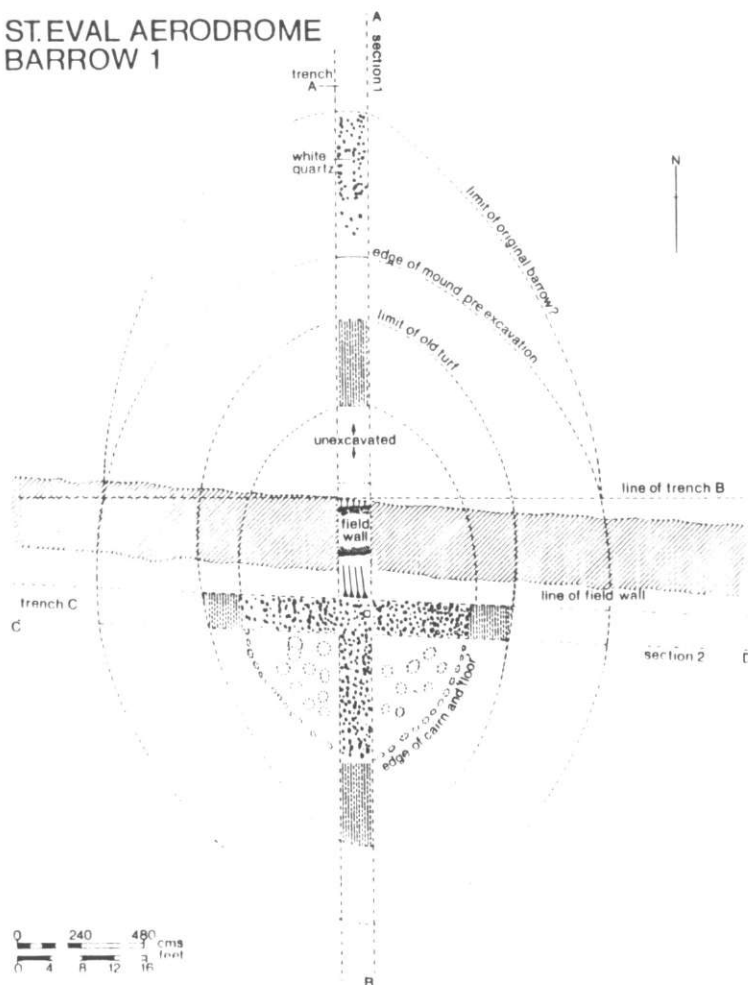


Fig. 4
St Eval: plan.

1964, 315–317). Quartz occurs naturally in veins in the strata. The mound had been reduced by ploughing, as well as being badly damaged by the field hedge.

1939 Excavations

The surviving records from the excavation consist of one small notebook (also containing details of other sites) in which are 10 pages of measurements for sections, and minimal notes; 8 photographs (negatives and prints); a few small finds and environmental samples.

It appears that 3 trenches were dug across the barrow: Trench A, (N–S); Trench B, (E–W); and C, (E–W) (Fig. 4). It is not clear whether a machine was used to cut these, but a brief entry in the notes and the evidence of the photographs indicate that one was employed on the site at some stage. The two measured sections are in Trench A east side (Section 1) and Trench C south side (Section 2). The E–W trench through the centre (Trench B) was not measured, presumably because the cutting coincided with the line of the field wall, and Section 2 was displaced 17 feet (5.2m), to the south of the central peg.

ST. EVAL AERODROME, BARROW 1.

SECTION 1, trench A

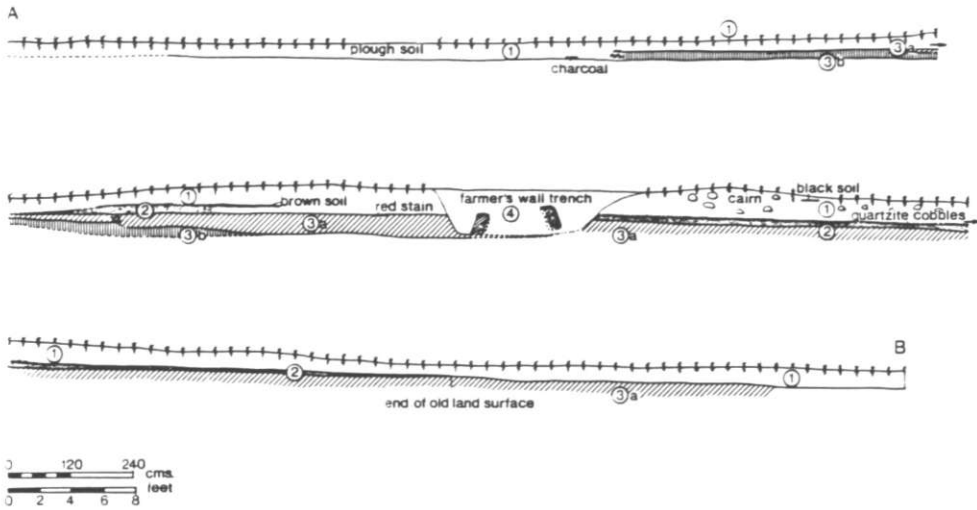


Fig. 5

St Eval: section 1, trench A: (1) dark grey clay (2) black earth (3) yellow subsoil (3b) red subsoil (4) fill of wall trench.

Post-excavation Work

The measured sections have been drawn out by the present writer (Figs. 5—6) and an attempt has been made to reconstruct the plan of the barrow (Fig. 4). From this it can be deduced that an unditched, oval mound of earth and stones covered a floor described as 'a natural yellow clay surface bleached whitish fawn, thickly strewn with fine fragments of white quartzite, tiny quartz crystals and black loam'. It appears from this description that the vegetation horizon ('black loam') had not been stripped beneath the mound. This dark earth, which also contained some charcoal, was referred to initially in the section measurements, as the 'pyre'; but this interpretation was abandoned and there is no evidence for burning on any large scale in the small area excavated. The dark earth ('old turf') ends toward the edge of the mound, suggesting that the old land surface was stripped of vegetation beyond that point in order to build the core of the barrow. Since a considerable part of the

ST. EVAL AERODROME, BARROW 1.

SECTION 2, trench C.

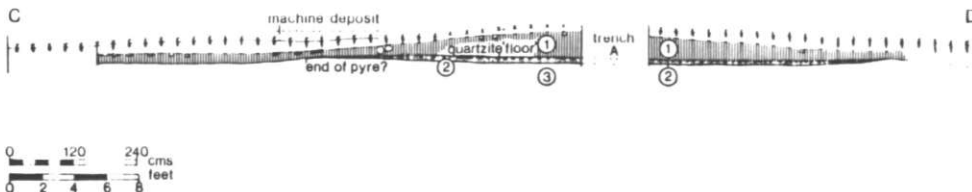


Fig. 6

St Eval: section 2, trench C: (1) black earth (2) old land surface (3) yellow subsoil.

stripped area was still covered by the tail of the mound, removal by ploughing seems unlikely, unless the mound has spread considerably in the recent past.

The barrow mound appears to have been oval, measuring 88 ft (26.8m) N—S and approximately 64 ft (19.5m) E—W. Certainly the existing 'old turf' beneath the mound is longer on the N—S axis.

The presence of white quartz under the barrow could have been due to human action, in which case there need be no reason to doubt the excavator's interpretation of this as a 'ceremonial floor', especially in the absence of any good photographs to establish the exact nature of the quartz spread. However, it should be noted that elsewhere in the county, even on sites dug by Croft Andrew himself later (Nancekuke etc), where quartz occurs naturally in the killas, small quartz pieces can collect naturally in the old land surface (OLS) and, when the organic horizon is removed, can appear as a 'floor' on the yellow or red subsoil. (The white quartz shown on the plan in the north trench, beyond the apparent limits of the barrow, could be a result of ploughing down the mound and spreading the finer material which would settle out at the base of the plough soil). If the mound did originally extend to cover this quartz 'floor', then it would have been even more elongated N—S.

The term 'cairn' is used to describe the mound in the southern half of Trench A but not at all in the E—W cutting. The undug piece of Trench A north may have covered cairn stones. From the photographs, stones do not appear to have been closely packed, though if a central cairn had existed, the construction of the field hedge could account for its dispersal.

Discussion

Little can be said of this barrow in view of its partial excavation and the absence of dateable material or features. The surviving potsherds and flint flakes from beneath the mound suggest a prehistoric date. Oval, unditched barrows exist in the county; central cairns, if such this was, are common, usually covering a central deposit, though not necessarily a burial.

The barrow cemetery to which the site apparently belongs is situated on the high ground above the coast and forms part of but one of the numerous chains of barrow groups running diagonally across the county from the sea to the moors further east. As part of this group, therefore, it can be dated to the Bronze Age, and probably the earlier half of this period. Details of other sites on or immediately adjacent to the airfield are given in the Parochial Check-List for the parish of St. Eval (*Cornish Archaeology* 17, 1978, 116), where they are listed as nos. 4—7 (SMR numbers 11, 12, 15 and 16); also included is the menhir of quartz (SMR 49) on the parish boundary.

Small Finds by Frances Healy

Pottery

Two small, plain, quartz-tempered body sherds, perhaps from Trench B west, seem to be of prehistoric date.

Lithic material

Surviving worked lithic material consists of two flakes of beach pebble flint, both from Trench C, one of them from the yellow clay of the old land surface beneath the barrow.

Environmental samples

Two samples containing charcoal survived from the excavations and have been identified by Caroline Cartwright. No details are given of their provenance, but it has been assumed that they were from beneath the barrow mound:

- 1 Charcoal (from Trench 1) — 2.3 gm *Quercus* sp. (SE/s 3)
- 2 Charcoal - 2 grams Leguminosae charocal (SE/s 2)

A further sample of soil from beneath the barrow was examined by S. Stead for remains of cremated bone but only one tiny fragment of unidentifiable calcined bone was found.

PENHALE BARROW, NANCEKUKU

NGR: SW 6765 4627 SMR: SW 64NE, 24

A barrow situated on Nancekuke Common, where an airfield was to be constructed, was excavated by C.K. Croft Andrew in August 1940, concurrently with another barrow on Trevellas Down some 6 miles to the northeast (described below).

Introduction

The site known as Penhale barrow (Tangye, 1966, 70) lies at 285 ft (87 m) above OD on a plateau composed, like all the surrounding area, of pink Devonian slate known locally as killas (or shillet) which weathers at the surface to a yellow or pink clay (Fig. 7). The barrow had been ploughed down to no more than 15 in. (0.38 m) high before excavation, and the ditch would not have been apparent. In about 1931 the farmer had dug into the site at the request of some 'very quizzical visitors' and recounted finding 'a layer of black matter and a white layer which looked like rotten bone'.

1940 Excavation

The excavation records for Nancekuke and Trevellas barrows are far from complete and to make matters worse are together in the same notebook, so that it is hard to separate one site from the other. Photos of both are also intermingled and not captioned; the few finished drawings which survive are often inaccurate, and some finds mentioned in the notebook are not present. The published paper (Croft Andrew, 1945) dwells mainly on the unusual turf construction and wooden shovel at Nancekuke, while measurements and notes are far from adequate.

The original plan of Nancekuke, drawn by the Ministry of Works, shows surface and ground level features, but only those at ground level are reproduced on Fig. 8, and these have been checked and corrected against Croft Andrew's own sketches where necessary and/or possible. The notebook contains measurements for the E-W section only, but the N-S section drawing by the Ministry of Works draughtsman is also present. From these records the following can be deduced concerning the barrow at Nancekuke.

Barrow Construction

Ditch

A continuous ditch 56 ft (17.1 m) in diameter surrounded the mound. According to photographs, (Fig. 10) it was fully excavated in the SW quadrant and in the axial trenches only, though the MOW plan marks it all the way round. From the drawn sections and photographs it appears to have had a very narrow, almost V-shaped profile, but the notes and sketches of the excavator describe it as 15 in. (0.38 m)

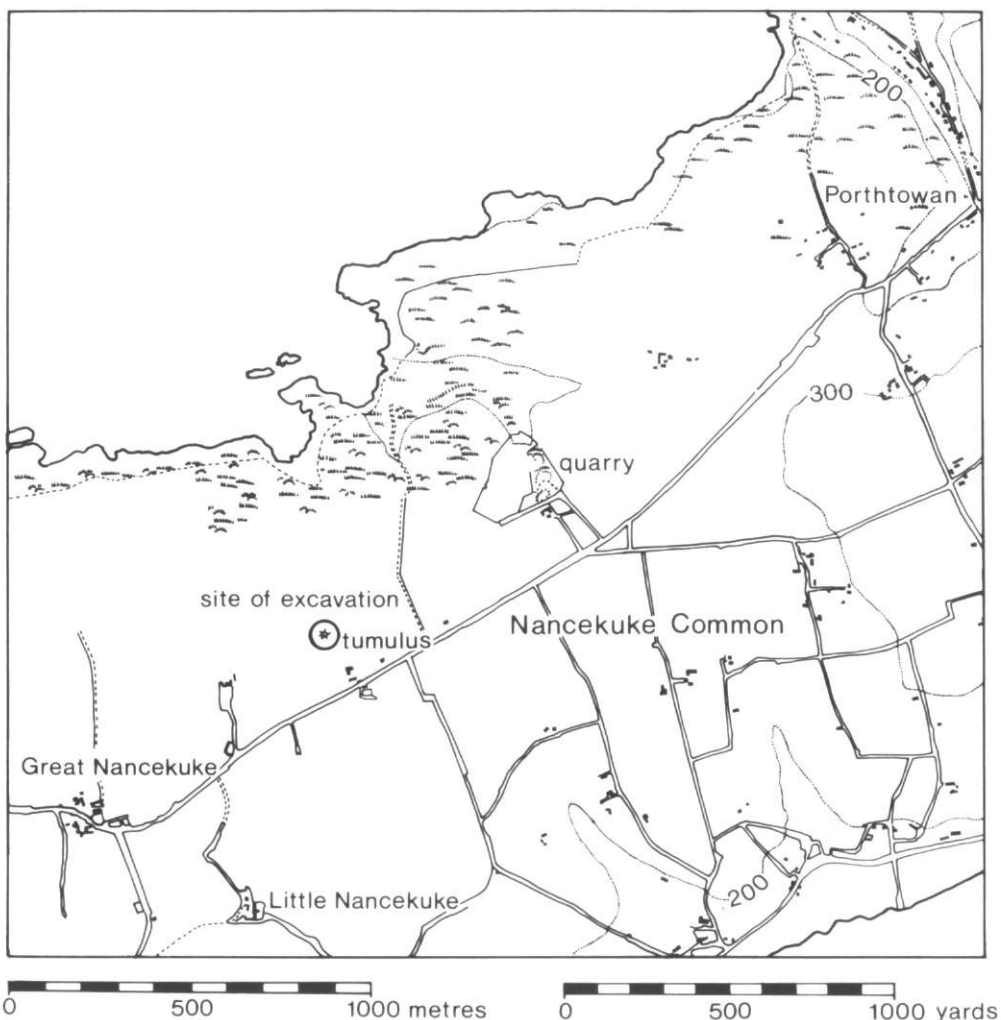


Fig. 7
Nancekuke: location map.

wide at base and 8 ft (2.4 m) wide at old land surface (OLS) level. Before erosion of the ditch sides, this width would have been less. The ditch fill consisted of the following layers: *primary silt* (layer 6 in Fig. 9) described as 'quick silt' or 'pink silt'; '*pink slide*' (presumably similar to layer 6) at the sides and bottom; '*stony silt*' (layer 5) — a brown sandy loam containing a quantity of 'macadam-sized' stones. A large number of pebbles were found in the ditch; 55 pebbles were found in the south and east ditch sections in the first two days of excavation.

Mound

The mound was of turf (layer 2) and is described by the excavator as follows: '... as one cut sections ... the separate turves stood out sharply in a bold tiger-stripe of alternate blackened turf and yellow subsoil. It was even possible to measure individual sods, cut and laid grass side down, inclined inwards towards the centre'.

Careful measurements were taken and the sods found to range between 7 and 22 in. (0.18 and 0.6 m) in length and 6–10 in. (0.15–0.25 m) thick (Fig. 12b).

The old land surface (layer 3) was clearly visible as a black band c. 2 in. (50 mm) thick between the remains of the turf mound and the yellow clay over the killas, but records are incomplete as to its extent on the N and E. Beneath the dark layer a marked layer of small stones, 1–2½ in. (25–65 mm) long and including a fair number of bigger ones 6 in. (150 mm) long, was noted. These stones, which were mostly of white quartz or quartzite, were considered to be natural and not a possible artificial layer like that observed at St. Eval. The excavator noted that a newly cut cornfield nearby showed a weathered surface of stones very similar to that beneath the barrow, and a photo was taken to illustrate this.

The old turf extended to within a very short distance of the inner edge of the ditch, except on the north, where it appeared to have been cut back further. The excavator believed that this narrow strip between ditch edge and beginning of old turf represented a berm to the barrow, which would have been wider before erosion of the ditch sides. However, doubts were there, in view of the apparent cutting

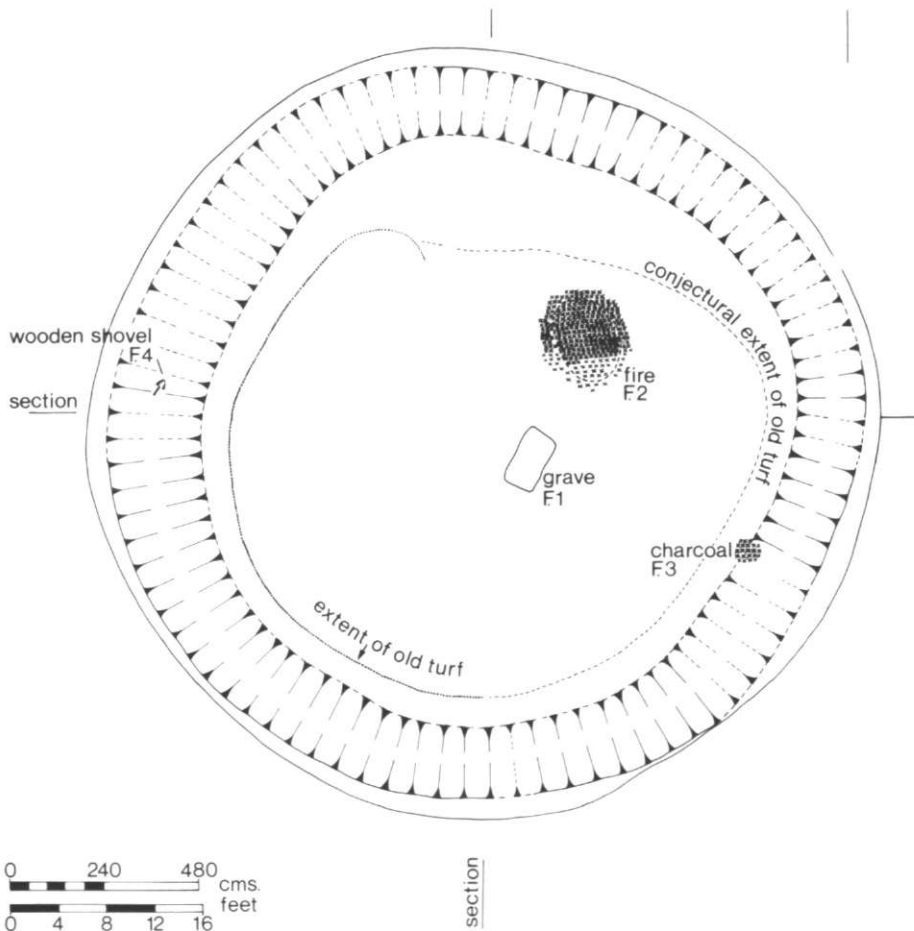
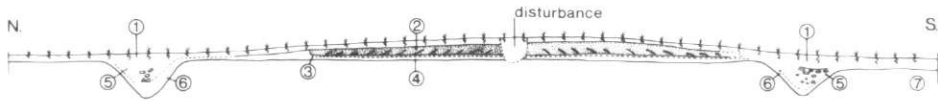


Fig. 8
Nancekuke: plan.

NANCEKUKU BARROW.

NORTH-SOUTH SECTION



EAST WEST SECTION

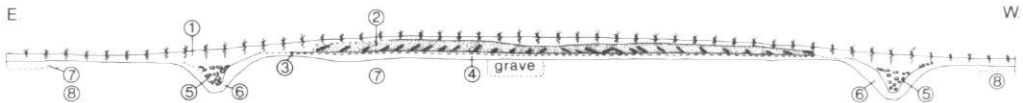


Fig. 9

Nancekuke: sections: (1) plough soil (2) turf stack (3) buried turf (4) yellow clay over killas (5) stone silt (6) primary silt and 'pink slide' (7) pink (weathered) killas (8) pink rock (un-weathered killas).

down through old turf and yellow clay to the killas, as he records on 21 August: 'In the SW quadrant, 'dome stripped', it is hard to believe that the evident berm, now 12 ins. wide and originally (?) 15 or 18 in. wide, has been produced by weathering... photo taken to illustrate . . . trowel in top of old turf. Some of the big stones from ditch grouped behind'. A later photograph shows the berm 2 ft (0.6 m) wide. The photographs show a considerable quantity of large stones which had been retrieved from the excavations, some apparently from the ditch, and these are shown arranged round the berm in a manner which indicates that the excavator believed a stone revetment may have existed, though there is little in his notes to substantiate this apart from the above comment.

Features beneath mound

F 1 — 'Grave Pit': (Figs. 12c and 13). This had been emptied by the farmer (presumably) and nothing is recorded as coming from it or from near by, apart from the 'black matter and white layer' reported above. At the very end of the excavation, CKCA's notes report a small trench running into the grave from the east side 'sunk through the yellow clay subsoil and 3–10 ins. (75–250 mm) into the red killas'. The fill of this trench is not recorded; it could be a natural feature since the old turf appears to lie over it.

F 2 — Fire: An area in the NE quadrant, described as the 'fire site' is carefully plotted in notebook and on plan, but not recorded in any detail. It would appear that a fire had burned on the old land surface: a note states that in one patch 'hot ash charred some yellow soil and charcoal was collected' (Charcoal sample 2). However, in the published paper the whole area is described as having been 'charred by a hot fire'.

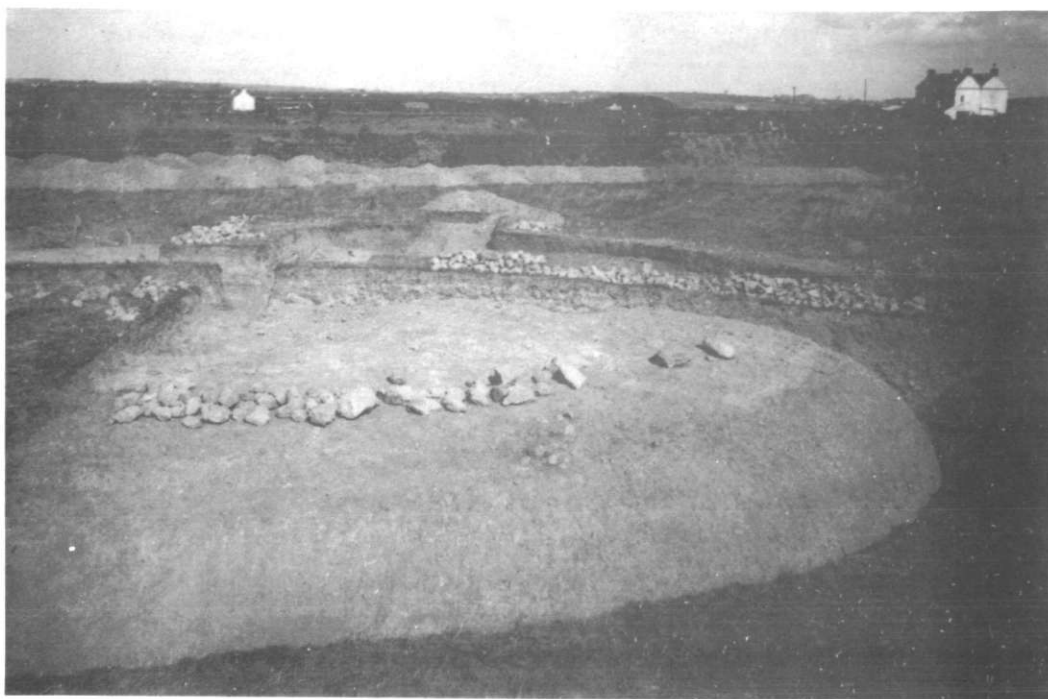


Fig. 10
Nancekuke: south-west quadrant.



Fig. 11
Nancekuke: south-east quadrant and ?position of 'shovel'.

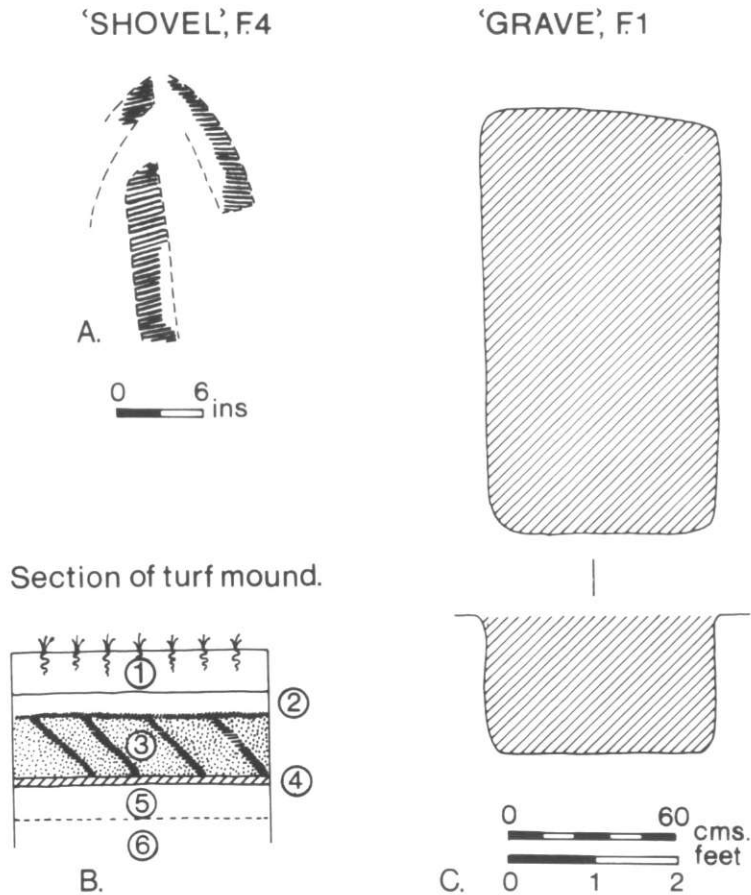


Fig. 12

Nancekuke: A. shovel (F4); B. section of turf mound: (1) plough soil (2) mixed yellow/brown/black earth (3) yellow between black bands (4) buried turf (5) yellow killas (6) red killas; C. grave (F1).

F 3 — Charcoal Patch: A small deposit of charcoal ‘and carbonized small vegetation’ only 2 ins. (50 mm) thick was recorded in the eastern trench at an early stage of the excavation. Although less than 1 ft (0.3 m) below the turf, it was well sealed by a layer of red (?burnt) clay. It was on the very edge of the ditch and may be later than the barrow. (Charcoal sample 1).

F 4 — Wooden Shovel: (Fig. 12a). A charcoal object was found lying on the ditch bottom (see plan Fig. 8) 4 ft (1.22 m) below the surface on the west side. The excavator’s notes (for a lecture) describe this as ‘the remains of an oaken wooden shovel . . . found in the ditch bottom, beneath all silt. The lower shaft and the edge of the blade were preserved as charcoal, having I suggest been charred to harden them. The middle of the blade was represented only by brown crumbled fibre . . . Apparently the charred end of the handle fitted into an inclined mortise hole near the middle of the blade . . . so that the angle of blade to handle was similar to that of the modern tool’ — i.e. the Cornishman’s long-handled shovel. Croft Andrew goes on to recount how, having no plaster of paris on the site, the



Fig. 13
Nancekuke: grave pit cleared.

object was covered in for the night but despite all precautions it was broken up before morning by a 'meddlesome intruder', so that the form of the article is preserved only in a pair of extremely bad photographs, some broken charcoal and a sketch. The photographs have not survived; but a sketch in the notebook is convincing, and is redrawn as Fig. 12a.

The Small Finds by Frances Healy

Pottery

A small, plain, stone-tempered body sherd from 'trenches in SE', appears to be of Bronze Age fabric.

Lithic material (Figs. 14–15, Tables 1 and 5)

All the material listed in Table 1 is of flint, except for the holed and cupped stone (L5) and the bevelled pebble (L4). Where cortex survives it shows that the raw material consisted of beach pebbles. These must have been worked in the vicinity, since both pebble fragments (listed as 'irregular waste' in Table 1) and more complete split pebbles are present. Two split pebbles served as blanks for implements (L2, L3). The small size of the original pebbles is reflected in the curvature of L2 and L3, and in the size of the seven complete flakes, which are between 14 and 24 mm long, and of the one core, which weighs only 10 g.

A large quantity of beach pebbles was apparently found in the barrow ditch — 55 pebbles being recorded on the first two days of excavation. Four quartz crystals were also found in and over the ditch fill.

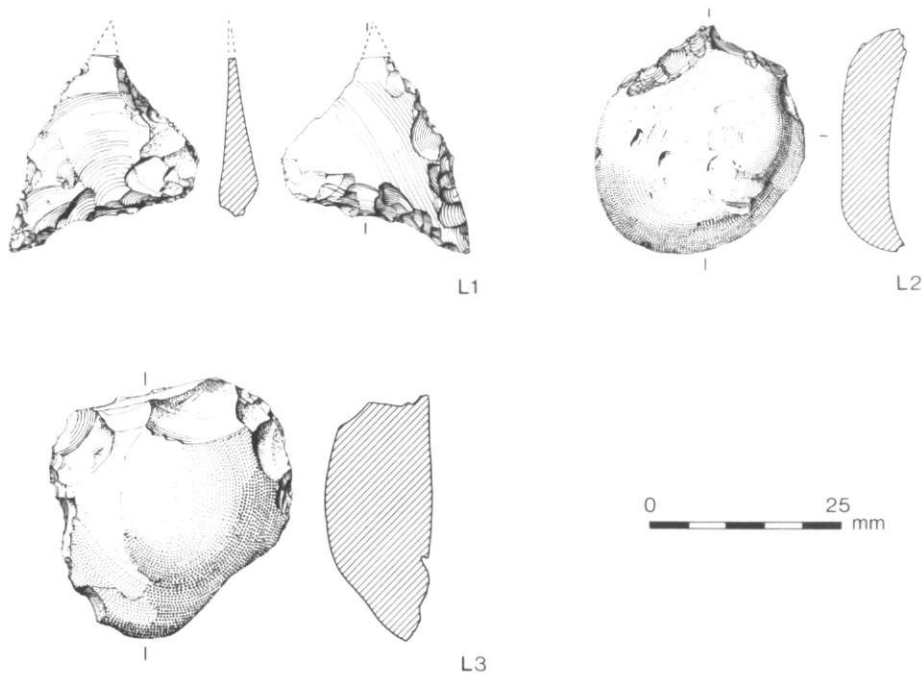


Fig. 14
Nancekuke: lithic material: L1 and L2 from ditch, L3 from ploughsoil (1/1).

Table 1. Worked lithic material from Nancekuke

Category	ditch	trenches in SE quadrant	topsoil	total	drawing
core			1	1	
irregular waste	3		2	5	
split pebbles	2			2	
flakes	6			9	
oblique arrowhead	1			1	L1
scraper			1	1	L3
borer	1			1	L2
bevelled pebble		1		1	L4
holed & cupped stone	1			1	L5
totals	14	1	13	28	
drawings	L1, 2, 5	L4	L3		



Fig. 15

Nancekuke: lithic material: L4 from the south-east quadrant (2/3), L5 from ditch (1/3).

There is no stratigraphic reason why any of this material should relate to the construction or use of the barrow. Typologically, only the holed and cupped stone (L3) is readily paralleled in Bronze Age funerary contexts, as at Tichbarrow, Davidstow (Trudgian, 1976a). The bevelled pebbles (L4) is of a class generally considered to be later Mesolithic. The oblique arrowhead (L1) is of a form current in later Neolithic contexts from the late third to the mid-second millennium bc (Green, 1980, 114–5).

In addition to the excavated material, a collection made near the barrow comprises

thirteen flint flakes (one of them possibly of non-beach flint), three flint blades, and a chert blade.

Charcoal by Caroline Cartwright

Sample 1: Charcoal from F 3

- 14 grams *Quercus* sp.
- 9 grams *Corylus* sp.
- 3 grams Leguminosae

Sample 2: Charcoal from fire (F 2) on old land surface, submitted to Harwell for C14 determination.

Discussion

Burial practice

From the farmer's account of the contents of the rectangular pit near the centre, it can be assumed that this contained the primary burial for which the barrow was raised. Whether this was cremation — and the description of a 'white layer' suggests that it was — or inhumation, it is impossible to be sure. The presence of a fire area north of the grave might indicate on-site cremation, though there was only a small patch where the soil has been 'charred' and this seems insufficient for a full-scale body burning, though the notes relating to this feature are sadly inadequate.

Structure

Too little survives of this denuded, robbed-out mound to be sure of its original form, except that it was a turf stack, with no sign of internal stone structure. It is possible that the deep rock-cut ditch provided stone for a capping and/or a revetment of the turf stack, and that the barrow could have stood at least 10–12 ft (3.1–3.7 m) high originally. The turf line was preserved beneath the mound, but the ditch and narrow berm, and probably an area outside the ditch, would have been stripped to provide the sods for the turf stack. The manner in which these sods were laid is of considerable interest, and Croft Andrew was probably one of the first excavators to observe and accurately measure such sods. Since the Second World War others have discussed the turf construction of barrow mounds, including the present writer (Christie, 1964, 41). The inclined sods observed at Nancekuke contrast with the horizontal brick-type of construction observed in some Wessex barrows, notably Amesbury G71 (Christie, 1967, Pl. 27(1)). Other barrows in Cornwall including Trevellas (below) show inclined turves, while Miss Dudley carefully noted the turf construction at Carvinack (1964, 419, 422).

Finds

The unusual quantity of pebbles found in the barrow ditch were apparently thought by the excavator to be associated with the barrow. Most were found in the first few days of excavation — or at least they are not mentioned after that — so they may have come from the upper filling of the ditch. In this case it is possible that they represent pebbles brought up with seaweed when manuring the fields. Pebbles from Cornish fields, especially near the coast, often derive from this practice. They may equally represent the raw material for knapping.

The wooden shovel (Fig. 12a) has already been compared with a similar object from the ditch at Crig-a-Mennis (Christie, 1960, Fig. 2) though at that time no drawing was known of the Nancekuke example. The Crig-a-Mennis tool, if such it was, had a long surviving 'handle', but the head was poorly defined, unlike the Nancekuke

object where the head was clear enough for Croft Andrew to sketch. If these objects were indeed tools, then they were presumably used for cutting the sods of which both mounds were built, as the excavator suggested (Croft Andrew, 1945, 40).

Dating

The most notable structural feature of this barrow to survive was the carefully built turf stack. Apart from Trevellas (below) the only other barrow excavated on the killas which shows this form of construction clearly and for which an absolute date is available, is Crig-a-Mennis (Perranzabuloe) excavated in 1957 (Christie, 1960) which has a radiocarbon date of 1565–90 bc. The barrow at Carvinack between Truro and Perranporth also showed a fine turf stack where individual turves could be measured and found to be 15 x 10 x 8 in. (380 x 250 x 200 mm), laid grass side up (Dudley, 1964, Fig. 2 and Pl 111). More recently the excavation of a barrow with a turf stack surrounding a cairn at Colliford in the east of the county has given a date of 1630±80 bc, which agrees well with Crig-a-Mennis (Griffith, 1984, 74). A date in the mid-16th century bc is therefore tentatively proposed for the construction of Penhale barrow at Nancekuke, in advance of the C14 determination from charcoal sample 2.

TREVELLAS DOWN

NGR: SW 7341 5224 SMR: SW 75SW, 23

Introduction

The site, which is marked on the 1908 25 in. map (Cornwall Sheet XLVIII SE), was excavated in advance of airfield construction in August 1940, concurrently with Nancekuke. Described as 'Trevellas Barrow', it lay in a large field by a quarry c. ¼ mile (400 m) due west of the hamlet of Trevellas Down, St. Agnes (Fig. 16). The 1908 map shows it as quite on its own, but it may have been a south-western outlier of a group of barrows described in the 19th century (Thomas, 1851, 38), only one of which survives. The local geology is the Devonian killas but the whole area is much disturbed by mining activity as a result of its proximity to the St. Agnes Granite. The barrow presented much the same aspect as that at Nancekuke, having been ploughed down to a barely perceptible rise in the otherwise flat field (Fig. 17).

1940 Excavation

As mentioned in connection with Nancekuke, the excavation records are very inadequate. The excavation was carried out by Croft Andrew's foreman, Medland, with occasional visits by CKCA himself. The survey of the excavated site was mainly undertaken by Hart, who subsequently 'disappeared'. CKCA's measurements for the main N–S section survive and form figure 19, Hart's measurements for the plan and features survive (Fig. 18) but not the measurements for the E–W section which he had taken. The method of excavation was the same as at Nancekuke, but less extensive stripping of quadrants appears to have taken place here.

Post Excavation Work

All surviving measurements have been drawn out, giving a tentative reconstruction of the barrow plan and one main cross section (Fig. 19). These, together with the sketchy notes, provide the following information:

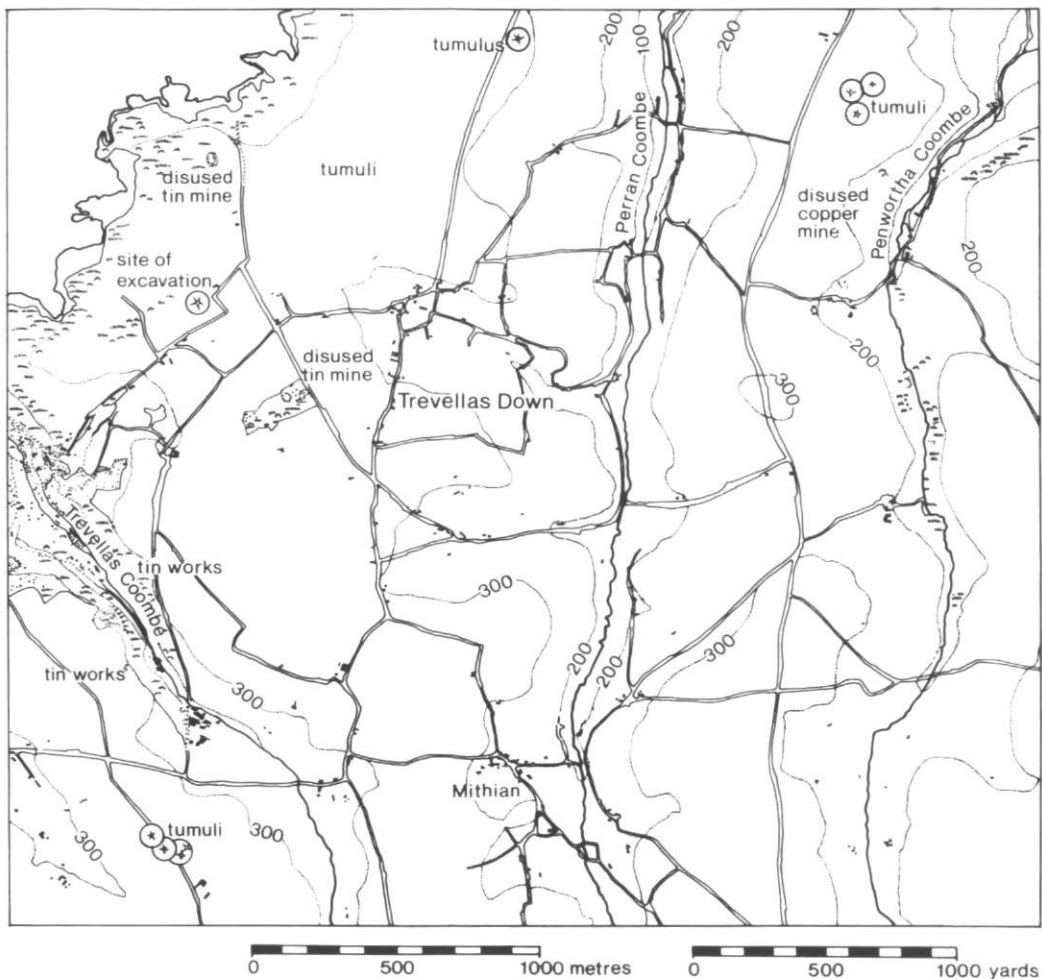


Fig. 16
Trevellas Down: location map.

Barrow construction

A mound of turf surviving to a maximum height of 18 ins. (0.45 m) had been built on the old land surface which showed 2 in. (50 mm) of black (believed to be turf) over yellow clay 6 in. (150 mm) deep, lying on the red killas bedrock. No ditch had been dug, and the extent of the mound was recorded as 28 ft 9 in. (8.7 m) E–W and 29 ft (8.8 m) N–S. As at Nancekuke, the old turf line was full of natural stones. The turf construction was particularly well seen in the SW quadrant where ‘a nice double turf line (is shown) — the lower black separated by 1¼ in. (32 mm) of yellow or ½ in. (13 mm) of reddish clay from the upper black of 1¼ in. (32 mm) thickness’ (Fig. 20). On the south, both photo and section record a vertical edge to the mound material and old land surface, though this is not discussed in the notes.

Features

F 1 — Robber Pit: At its centre, the mound had been dug into by miners, who had sunk a costean pit 4 ft (1.2 m) wide, c. 8 ft (2.4 m) long, falling to 6 ft

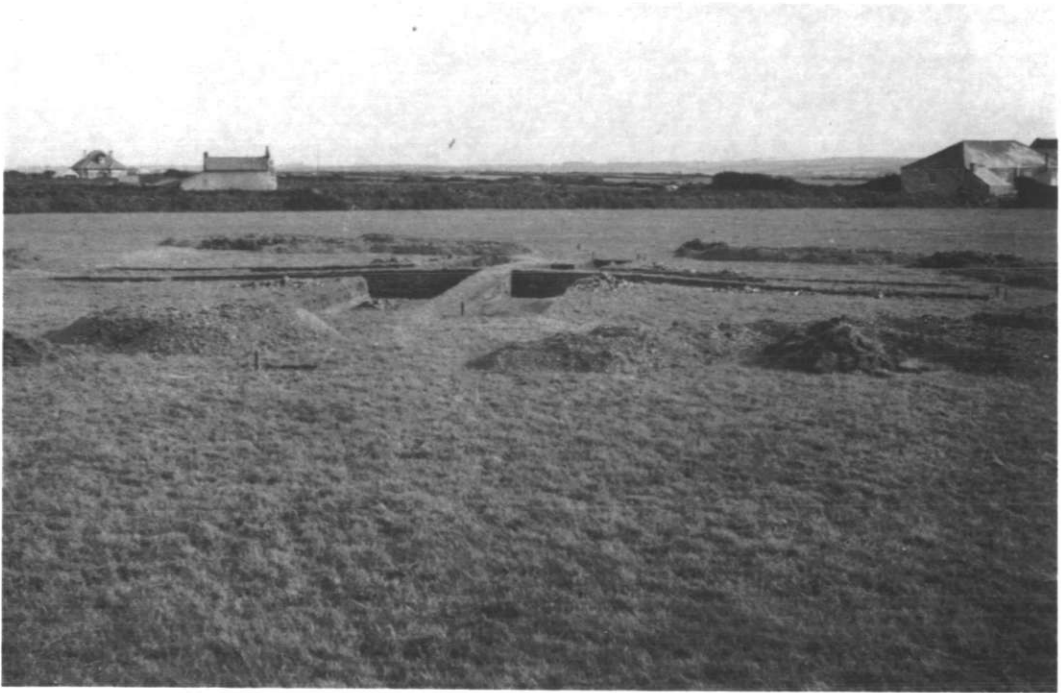


Fig. 17
Trevellas Down: general view from north.

TREVELLAS DOWN BARROW.

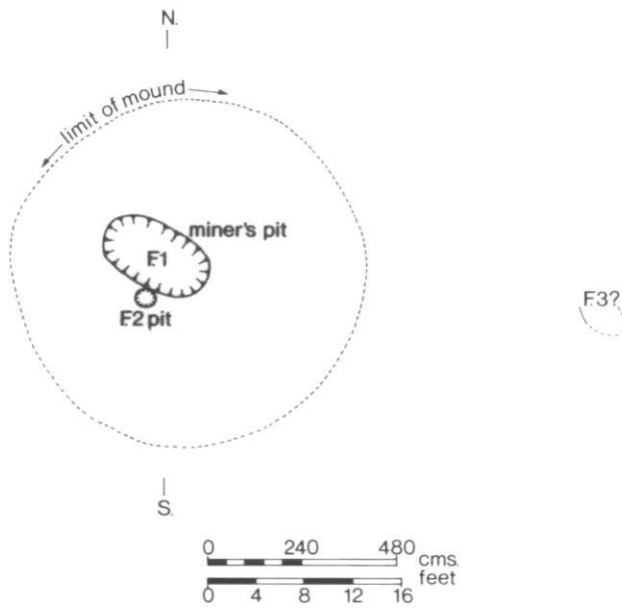


Fig. 18
Trevellas Down: plan (conjectural).

TREVELLAS DOWN BARROW.

NORTH-SOUTH SECTION

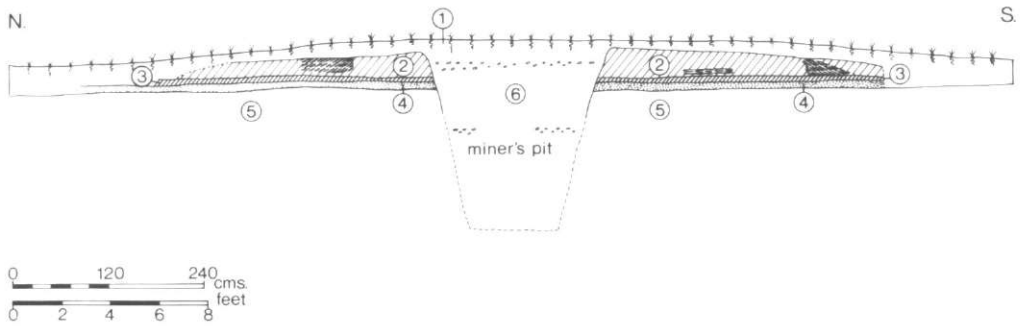


Fig. 19

Trevellas Down: section: (1) plough soil (2) turf mound (3) buried turf (4) yellow clay (5) red killas (6) dark clayey earth with bands of small quartzite stones and red clay (fill of miners' pit).



Fig. 20

Trevellas Down: view showing turf construction.

(1.83 m) deep and continuing NW and SE as tunnels 2 ft (610 mm) wide. The central deposit was therefore robbed out, though some fragments of urn were recovered in the excavation. Unfortunately, these do not survive, and the only information about the pot is the excavator's comment that it was 'probably made before 1000 BC' (Croft Andrew, 1945, 1) and the report in *Antiquaries Journal* 28, (1948) that it was a 'bucket urn'.

F 2 — Pit: A pit 18 in. (0.45 m) in diameter and 19 in. (0.48 m) deep, with regular rounded base described as a 'hemispherical cavity' was found near the southern edge of the miners' pit. This was filled with finely divided and larger pieces of charcoal, white quartz in small pieces and 'a few fragments of bone ash'. This could represent the remains of the 'intact ritual deposit' mentioned in the *Antiquaries Journal* report referred to above.

F 3 — ?Pit: A feature is shown on the east, beyond the limit of the mound, carefully measured in on Hart's sheets, but no mention of this appears in CKCA's notes.

A few tiny fragments of prehistoric pot, a glazed sherd, a flint blade and some charcoal are all the artifactual and environmental remains which have survived from this excavation.

Pottery and lithic material by Frances Healy

Four small, abraded sherds were found on 13 August 1940. It is impossible to tell if they formed part of the urn from the robber pit. The largest (P1, Fig. 21) has traces of finger-pinched rustication, which may also have been present on two of the others. A later Neolithic or Early Bronze Age date seems likely.

There is one small flint blade from 'South of infilling of miners' pit . . . 1½ ft under old turf'. This measurement suggests it was *in* the pit itself.

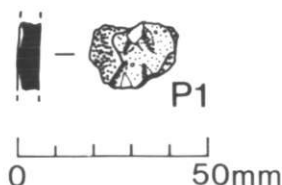


Fig. 21

Trevellas Down: rusticated sherd from unknown context (1/2).

Discussion

From the scant information available it would appear that the barrow was carefully built of turf in the manner of Nancekuke, though of smaller scale and without the ditch. The sharp, vertical stop to the mound shown in both photo and section (Figs. 19–20) suggest a timber or stone revetment to the turf stack at least at this point on the south side, though it is perhaps surprising that this feature was not mentioned in the notes. That the mound covered a near-central inurned cremation burial can be deduced from F2 and the report of an urn 'probably made before 1000 BC'. The barrow can therefore be seen as a minor outlier of the cemetery on Trevellas Down and, in view of its turf construction, belonging to the Nancekuke/Crig-a-Mennis cultural tradition tentatively dated to the mid-sixteenth century bc.

Other Sites

Barrow sites on Trevellas Down were recorded in the Cornwall Archaeological Society checklist for the parish of St. Agnes (Warner, 1962, 114), based largely on information given by Richard Thomas in letters to the *West Briton* in October 1851. Further work in the area has been carried out by the Cornwall Archaeological Unit Sites & Monuments Register where full details are available. The following is a brief list of these sites:

SMR		Approx. NGR	Remains
SW75SW, 25/1	White Burrow (Trevellas Great Burrow)	SW 741526	None extant
25/2	Trevellas Little Burrow	SW 740528	None extant
25/3	Barrow	SW 742527	None extant
25/4	Barrow — small	SW 742527	None extant
25/5	Trevellas Great Burrow	SW 742527	None extant
25/6	Barrow (Anker Barrow?)	SW 743528	None extant
25/7	Anchor Barrow or Creegmear Barrow	SW 745529	None extant
25/8	Barrow — ‘guttled oval mound 2.8 m high’	SW 74565311	Still extant

(Note: The location of sites 25/1—7 are based largely on Richard Thomas’ descriptions which do not fit with the known locations of barrows 23 and 25/8. The exact location of these seven barrows and their grid references (Warner, 1962, 114) must be regarded as uncertain.).

A further barrow group is sited on the ridge between Perran and Penwortha Coombes to the east, and this contained Crig-a-Mennis (SMR SW75SW 37) in Perranzabuloe parish (Warner, 1963).

LOUSEY BARROW, ST. JULIOT NGR: SX 1341 9321 SMR: SX 19SW, 4

Introduction

The site is situated on high ground near Newton, in the parish of St. Juliot, and is one of several barrows on the ridge. The local geology consists of the Upper Carboniferous Crackington Formation (Namurian), part of the Culm Measures, which are mainly shales, though the barrow in fact lies on a sandstone ridge, as do most of the barrows in this area. Lousey Barrow is on the north side of the minor road leading from the cross-roads at Tresparret Down, along the ridge, and then steeply down to Crackington Haven (Fig. 22). An OS trig station block (861 feet OD) was buried in the centre of the mound, but dug out during the course of excavation and subsequently incorporated in the road hedge.

Croft Andrew (1945) provides the following summary:—

‘During September 1940, Lousey Barrow in St. Juliot was partially excavated in an unorthodox manner to provide a military (Home Guard) observation post.

This is a steep-sided barrow, 96 ft in diameter, ditched, and still 10 ft high, situated on a hill crest 861 ft above the sea, near some of the highest cliffs in Cornwall.

'The method on interment here was very curious. Three feet apart, near the geometrical centre of the floor, were deposited two sets of human remains, one parcel of calcined and comminuted bone from a cremation, the other an unburnt and apparently extended corpse. Around them had been scattered in a circle the sherds of two . . . Beakers.

'Outside the ring of sherds, on the circumference of a 10 ft circle were disposed five little cists, each formed of a slate slab cover supported on a few rough stones, and each found empty, save for a few tiny white pebbles and the dark stain left by the decay of carbonaceous substances, presumably offerings of food.'

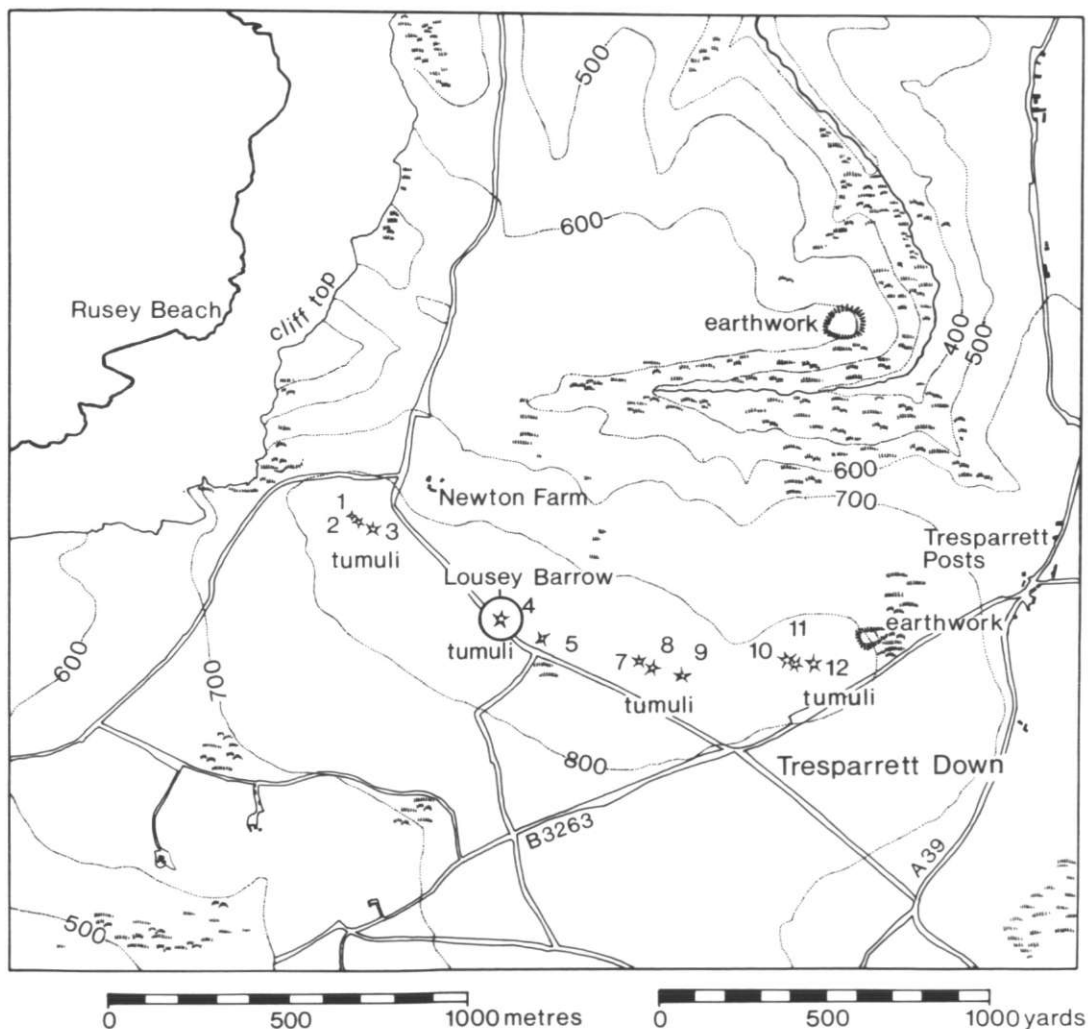


Fig. 22
Lousey Barrow: location map.

Croft Andrew goes on to describe the structure of the mound and to discourse on the Neolithic analogies with both finds and burial rites. All of this is incorporated into the report that follows.

1940 Excavations

The surviving record consists of: a notebook, a sketch plan (early stage of excavation), one drawn section, 27 photographs, and the pottery and stone artifacts. No bone, cremated or otherwise, and no environmental samples survive.

Before excavation the mound stood over 10 ft (3 m) high and the ditch may not have been apparent. It still stands high today; the central depression and the partly back-filled Home Guard access trench are visible. Along the west side runs the modern road, with a verge and hedge which impinge on the mound. According to the sketch plan and photos, a hut (? the excavation hut) overlay the ditch between the mound and road hedge (Fig. 23).

The trig station had been set up in 1880 and 'marked by a hole in a stone 2 ft below the surface in the centre of an ancient barrow known as Lousey Barrow'. This was restored and remarked in 1912 with a 1 ft concrete block 'sunk 3 feet below the top of the hollow and 5 feet below the general surface of the mound'. The resulting depression 14–16 ft (4.3–4.9 m) in diameter in the centre of the mound was thought to be due to this activity. However, the original OS marker was apparently found undisturbed in 1912 and the suggestion made that the hollow in the centre was due to excavations prior to 1880, though these did not appear to penetrate below the top of the cairn. The broken bowl of a 17th century pipe found well down in the centre lends support to this, and local stories recount attempts to dig the barrow and of thunder and lightning ensuing.



Fig. 23
Lousey Barrow: general view of site from south.

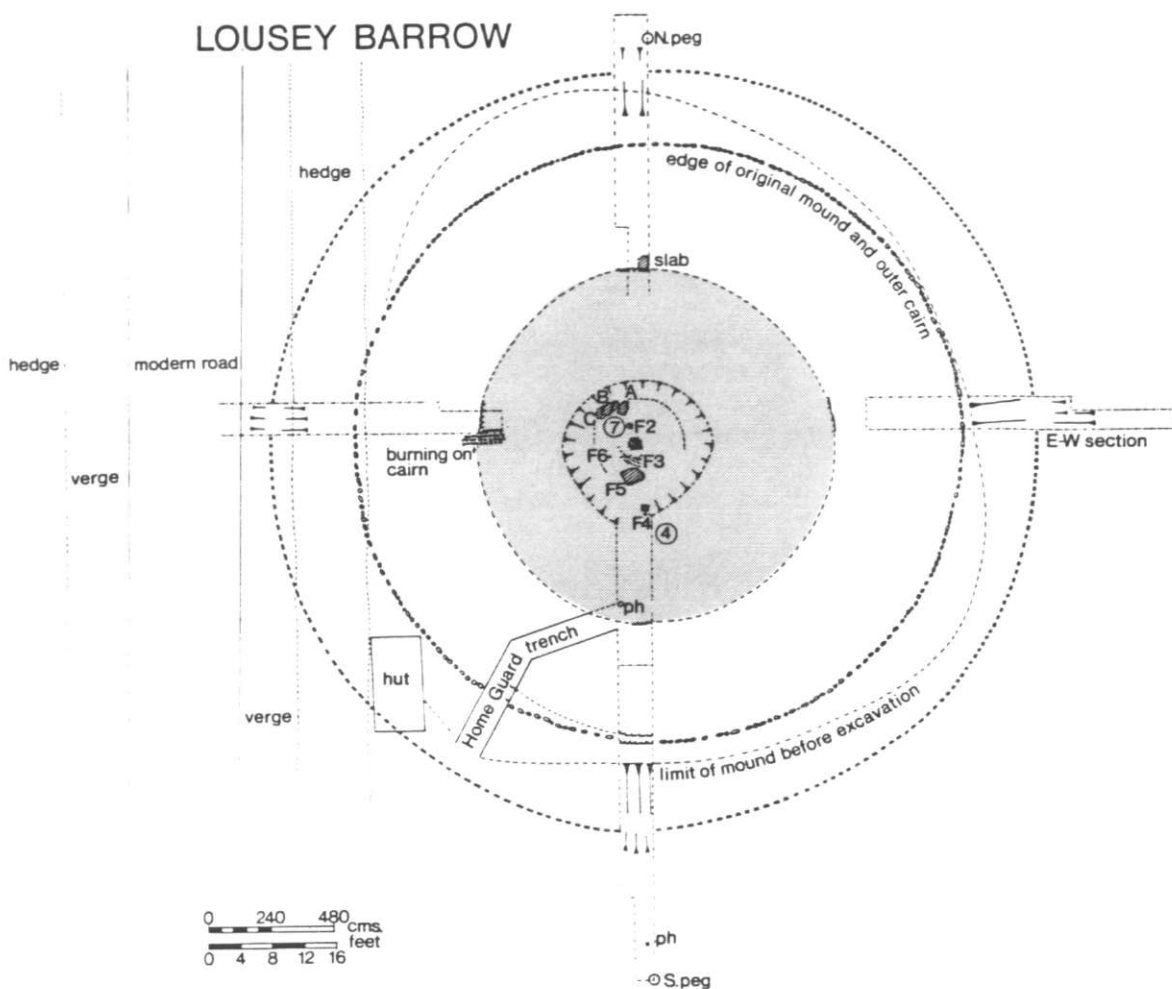


Fig. 24
Lousey Barrow; plan.

The unorthodox method of excavation was as follows. A 4 ft (1.2 m) trench was cut from the centre to the S for a distance of 8 ft (2.4 m), at which point a diagonal trench (access for the Home Guard) was cut in a dog-leg to the SW. The main cutting was continued S across the ditch and established the structural sequence of the mound. This was then confirmed in three other radial cuttings across the ditch and part way into the mound from the N, W and E. The central depression was excavated separately, as a pit, though ultimately with access along the Home Guard trench.

Although a small part only of this large mound was excavated, the two main cross sections were recorded and drawn out — the only time this appears to have been done in all the barrow excavations undertaken by CKCA. Measurements for these sections exist and the original drawing has been checked, amended and redrawn in the light of further information gleaned from the notes (Fig. 25). Layer numbers have been inserted for clarity. The descriptions of the layers are taken from the notebook.

LOUSEY BARROW.

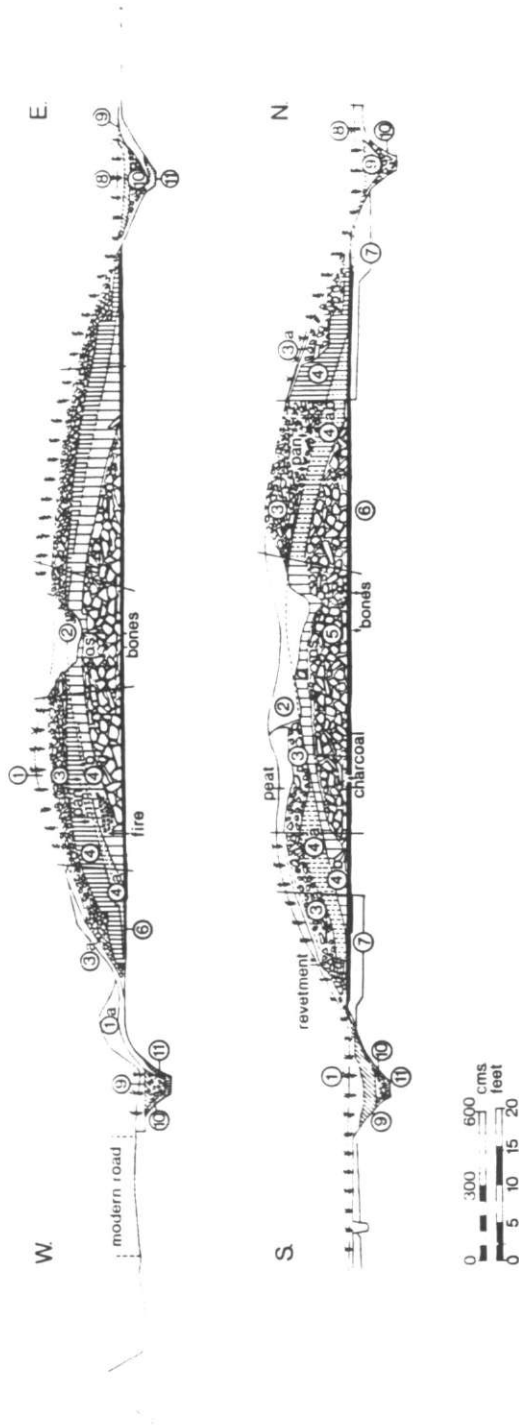


Fig. 25

Lousey Barrow: sections (redrawn from CKCA's originals): (1) turf and topsoil (1a) loose earth of road hedge (2) disturbed earth (3) upper cairn (3a) yellow clay with stones (? remains of cairn) (4) dark clay and 'black and white peaty layers' on north (4a) multicoloured clay with pan (4b) brown/white clay over OLS (5) inner cairn (6) black 'old turf' (7) yellow/white clay (8) turf over ditch (9) black peaty fill (10) stones and yellow (11) 'quick silt'.

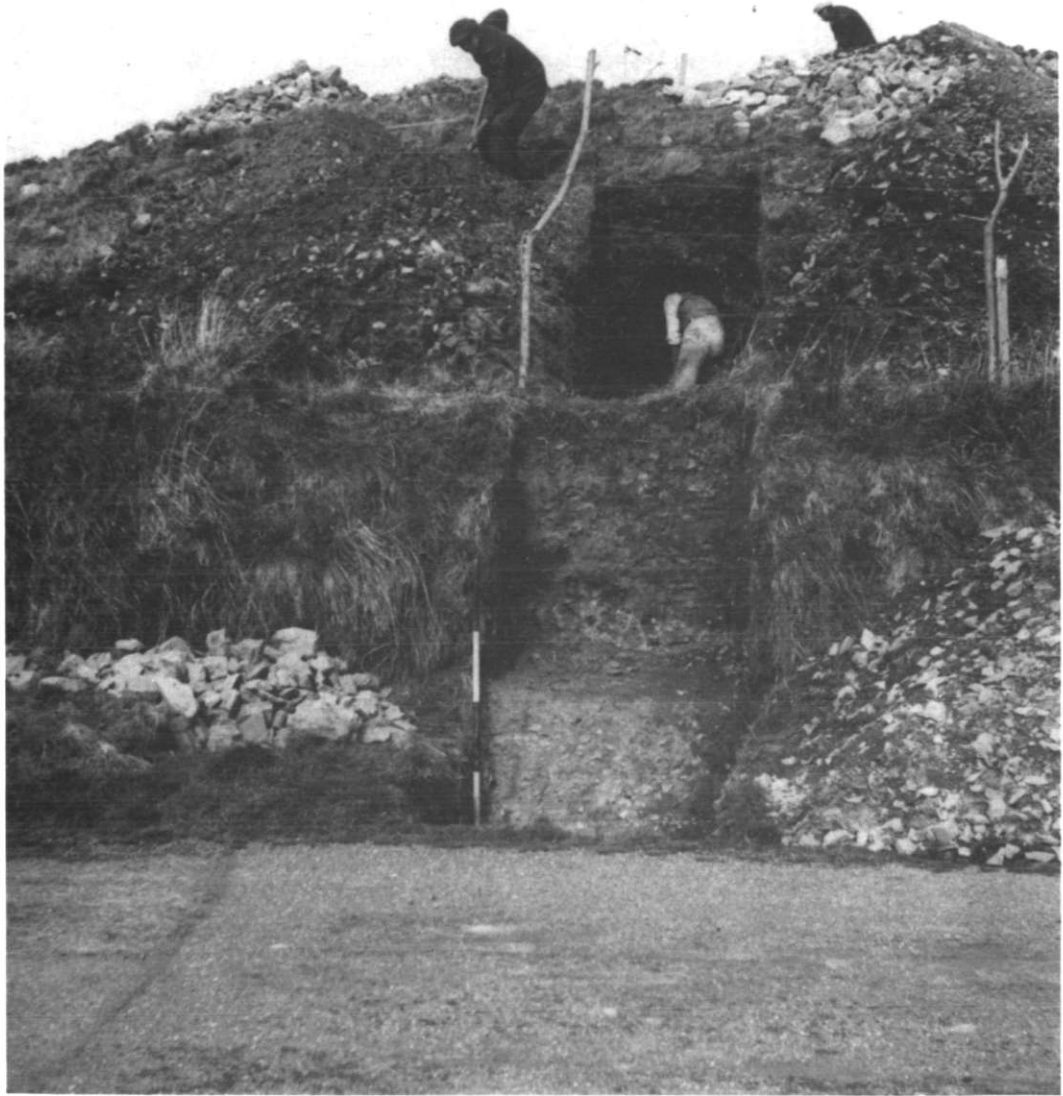


Fig. 26
Lousey Barrow: view of cutting across hedge and mound on west.

The plan of the barrow exists only as a rough sketch, annotated with measurements. Not all the cuttings are marked, however, and the lines indicating points of measurement are sometimes unclear. The barrow plan in Fig. 24 has been reconstructed from this sketch and from the evidence contained in the section drawings. From this, and from the notes and correspondence of the excavator, the following structural sequence can be described:

Inner cairn

After the burials had been deposited on the old ground surface (see below) a substantial cairn 44 ft (13.4 m) in diameter was heaped over them. Some large slates inclined outward, found on the periphery of the cairn in the Home Guard cutting, and a large slab found in the N cutting, suggest a revetment or 'orthostatic ring' of slate slabs set on edge. Croft Andrew's description of the cairn, in a letter to Brian O'Neil of 13 October 1940, is worth quoting:

'Lousey Barrow . . . contains a cairn which is giving me a lot of trouble. It is too good a monument to be mutilated for H.G. (Home Guard) purposes . . . progress in the middle is obstructed by an OS Trig station block sitting in the middle of my N-S trench . . . The cairn . . . is made of stones ranging from small scraps to lumps of $\frac{3}{4}$ cwt (38 kilos) all thrown together loosely, covered with turves and then sealed over with a thick clay cap which has prevented infiltration, so that one sees the stones all clean and dry with no earth between them, just as they were dropped . . . The loose stone naturally keeps running out into my trench. I have no timbers to support it, but got the section measured before its appearance was spoilt.'

Clay capping

Layers 4, 4a and 4b completely sealed the inner cairn. In his published paper Croft Andrew described a 'blanket of turf . . . clay dome' over the cairn. In the notes these are referred to as 'sods of turf with clay subsoil adhering, laid grass-side down' and as multicoloured bands of clay — black, grey, fawn, yellow, red — including a layer of iron pan, which he interpreted as 'trampled or puddled' in order to seal and waterproof the centre. This seems to have been effective, judging by the description quoted in the letter to O'Neil.

In the W section was found the remains of a fire in the first clay layer of the clay capping, interpreted therefore as burning during the building of the clay dome, and described as 'so fierce as to calcine and almost vitrify the cold raw clay to a depth of 15 ins. and to partially smelt metalliferous stones contained in it'.

From the description, it would seem probable that this clay capping was the remains of a substantial turf stack, compacted down to a multicoloured clay. On the north, however, there was noted a considerable thickness of 'black and white peat layers' between the upper cairn and the stony layer 3a which overlies it on the edge of the mound. Presumably this black-and-white layer consisted of turves, built in a stepped fashion: '. . . the black descends by 3 rough steps, each 1 ft or more high'. One step is also seen in the E section, and a putative step in the W.

Upper cairn

The remains of an outer covering, 2 ft (0.6 m) thick, of dry clean stones (layer 3) set on the clay capping, was noted in the central area. Elsewhere on the mound, in the part-sections, this layer is described as 'yellow clay with stones' (layer 3a). It may have entirely covered the clay capping and been retained round the edge by a dry stone wall of stones laid flat, as seen in the south section.

In the Home Guard trench a hole 4 in x 3½ in. (100 x 90 mm) was noted at a depth of 4 ft 6 in. (1.4 m) penetrating the clay dome. It is not possible to tell from the records whether this was the mark of a modern post or stake, or whether it was part of the barrow construction. The whole mound was covered by a relatively thin layer of turf.

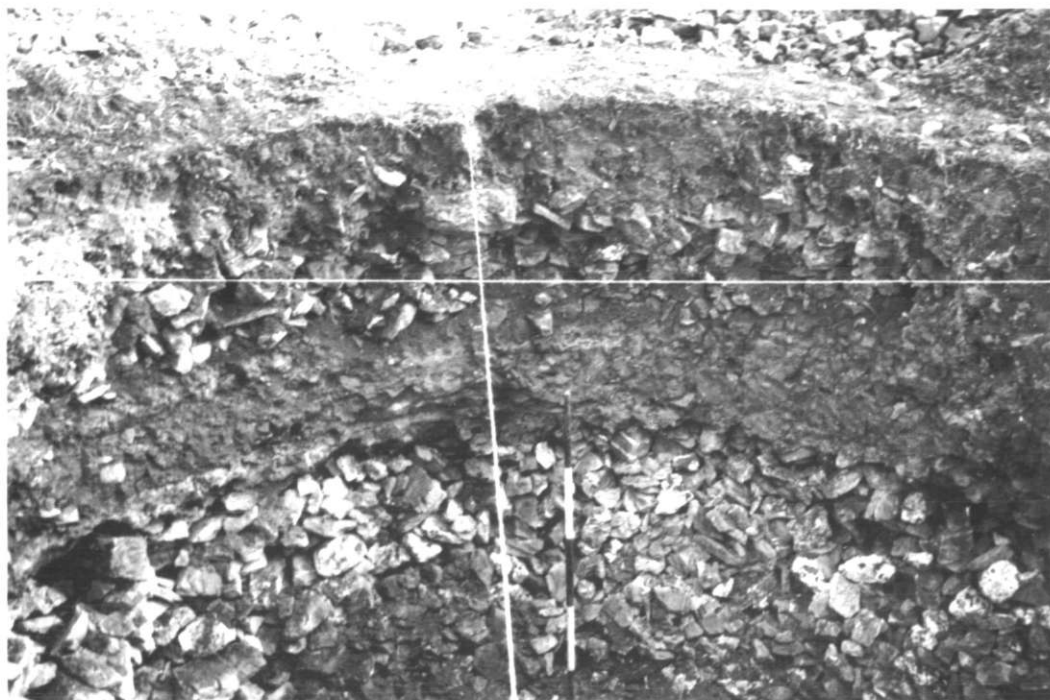


Fig. 27

Lousey Barrow: central area: detail of top layers, showing upper cairn (3) clay capping (4) and inner cairn (5).

Revetment wall

The stone revetment is seen best on the south, revetting the clay dome. It is described as having two 'faces' c. 7 in. (0.18 m) apart, comprising 4 and 7 small stones respectively, set one on top of the other, rising to 8 in. (0.2 m) and 15½ in. (0.39 m) high. It is noted that 'some of the stones have been hand-packed, flat, but no very stable face could be found and the best appearance was of a sloping face' — though the section drawing shows a vertical face on the south. It is not clear from notes or drawings whether the revetment wall ran round the entire mound, nor whether it rose high enough to retain the upper stones, though the south section drawing shows the wall revetting the stony layer 3a as well as the clay dome, and also shows a vertical cut in the base of the latter.

Berm and ditch

The berm appears to have been narrow, only 5–7 ft (1.5–2.1 m) in width originally, calculated from the drawn sections allowing for erosion of the ditch.

The ditch had a narrow base, not more than 2 ft (0.6 m) wide, and appears to have been cut with irregularly sloping sides. To the N and W it was rather steep-sided reaching 5 ft (1.5 m) across at ground level when freshly cut, whereas to the E and S it showed a much shallower slope and was 7–9 ft (2.1–2.7 m) wide at ground level. Since the primary silt is shown lying up the sides of this slope, it is assumed to be the original shape of the ditch, and no mention of recutting is made. A cupped pebble was found on the bottom of the ditch on the S side (Fig. 29 and specialist report p.56 below).

Beyond the ditch on the S, in the narrow extension, a possible post hole is shown in the section. This was noted as 'very irregular but showing black peat and small stones', and further south 'the yellow subsoil becomes speckled with black and dips down (toward the posthole) as though there might have been a hut — or other depressed structure there to which the posthole might belong'.

Central area

Three deposits from the central area are recorded in the notebook for 18 and 19 September:

F 1. Cremated bones lying on old turf, covering an area approximately 1 ft 3 in. x 2 ft (0.38 x 0.6 m); two small pebbles were found with the bones. 'The bones were tipped out onto the turf and stones piled directly upon them . . . the big stone directly over is a lump of white quartz'.

F 2. A deposit described as 'brown mush like decaying raw bone' and later as 'the much decayed remains of an unburnt skeleton — the right haunch bone alone recognisable . . .' The corpse appeared to have been in an extended position, according to CKCA's published paper.

F 3. Pottery and 'wood' on the old turf, the pottery apparently scattered in a circle around deposits 1 and 2.

Other features recorded as annotated sketches (with measurements in the notebook) from the centre are as follows (*italics* = CKCA's description):

F 4 — *Charcoal on stony turf level* — no further details.

F 5 — *Bush hole, irregular* — the measurements place this beneath the inclined slab shown on the plan which was sketched earlier in the notebook.

F 6 — *Hole 9 in. x 1½ in. (230 x 38 mm)*. This is presumably a stake hole 9 in. deep.

F 7 — *3 flat stones in NW* — a sketch with measurements of stones marked A, B, C. A and B are shown overlying C. The final sketch of the central area shows one stone only, described as 'flat slate' and this may be stone C. It is possible that these covered the small cists described in Croft Andrew's published account (1945, 41).

The excavator's account of these finds at the centre of the barrow are graphically described in his letter to O'Neil of 13 October 1940.

' . . . I got the primary burial, though this was a poor affair and was reached under bad weather conditions. Radford again turned up at the critical moment, and helped to extract the fragmentary remains from fluid black mud at the bottom of my central excavation, 8 ft deep. He is inclined to think the bones were buried raw, while I think they are the comminuted product of a cremation effected elsewhere, though certainly some fragments seemed to be rotting when found. My present opinion is that the fragmentary bones were carried on to the site in an unidentified receptacle, tipped out in a little heap at the centre, and promptly covered with the first stones of the cairn. (No evidence of any wooden structure around or over). Then sherds from a shattered pot were strewn around in a circle. Many of these sherds doubtless lie under those parts of the cairn which I could not lift, so that I have only a part of the vessel . . . Radford agrees with me in calling them Beaker.'

From the above it is not clear whether there were two parcels of bone or one, though the description in the notebook is explicit in mentioning that there were two deposits — one of 'raw bone', the other of cremated bone, lying one behind the other on the E-W axis — with precise measurements of both. The plan of the stones and position of potsherds and wood is, however, far less easily interpreted, as is the extent of the excavation in the central area into which the stones from the unshored cairn kept slipping. As for the five cists with ?food offerings and small white pebbles mentioned in the published paper (p 41), these are not recorded in either notebook or correspondence, unless the flat stones in the NW of the area (F 7) and the inclined slab on the south relate to these, but the drawings and measurements were far from clear.

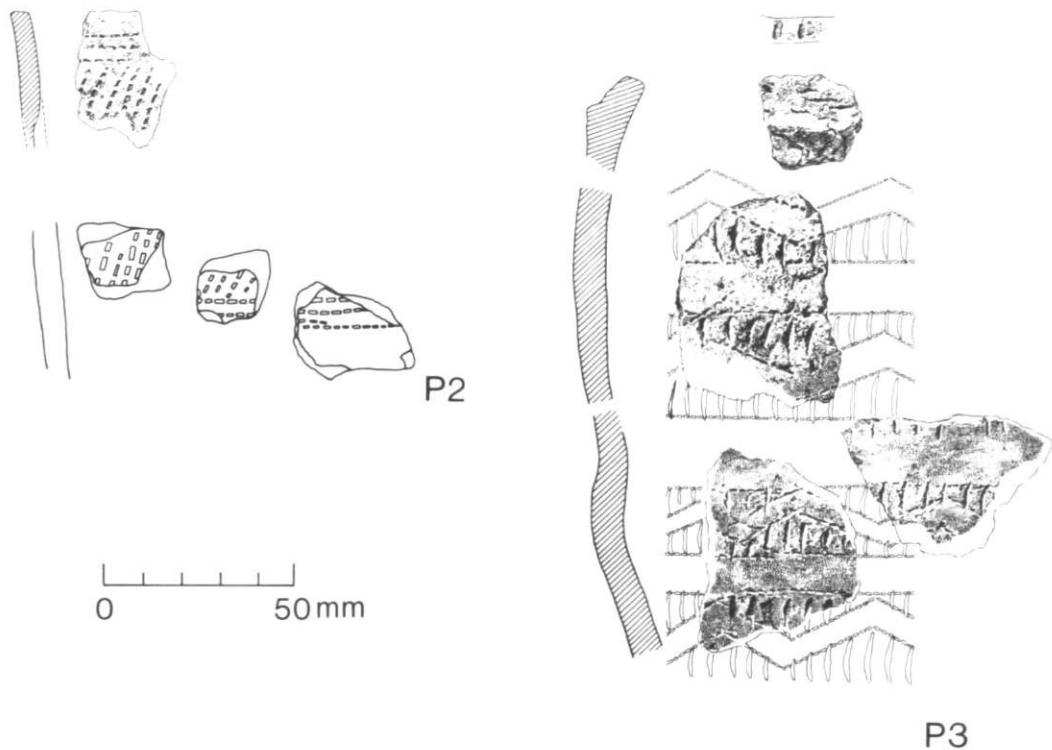


Fig. 28

Lousey Barrow: beaker sherds from around the central burials ($\frac{1}{2}$). Drawn by Professor W.F. Grimes, with further sherds of P2 added in outline.

The Small Finds

Pottery (Fig. 28, Table 4) by Frances Healy

The zoned, comb-impressed decoration of P2 cannot be reconstructed into a complete scheme, but is most easily matched among beakers of Case's Middle style (1977, 72) or of steps 2–4 in the scheme of Lanting and Van der Waals (1972, 36). P3, on the other hand, is assignable to Case's late style, to Lanting and Van der Waals' step 6, and to Clarke's Developed or Late Southern groups (1970, 210–213, 225–226) by its slack profile, inturned rim, and reserve decoration.

Middle style beakers were current in Britain from c. 2000 bc (2500 BC; Burgess, 1980, 64); Late style ones only from c. 1800 bc (2200 BC; Burgess, 1980, 68). The association of sherds of P2 and P3 accords with accumulating evidence for the continued manufacture of beakers with earlier traits alongside later forms up to at least the mid-second millennium bc. This is seen most notably in the ditch silts of Site IV at Mount Pleasant, Dorset (Longworth, 1979, 90–91). Mid-second millennium bc dates for charcoal from the basal stone layer of a mound at Poldowrian, St. Keverne which contained sherds of several Middle style beakers may, however, be misleading. The excavator considered that the lateness of the dates might be due to contamination of the samples, which came from a level only 0.3 m below the modern ground surface (Harris, 1979, 30). There is also the possibility (suggested by Arthur ApSimon) that the alternate layers of stones and earth which composed the mound may have represented turves in which beaker sherds were already present when they were cut. In this case, the radiocarbon determinations would provide a *terminus ante quem* for the deposition of the pottery.

Lithic material

A single flint was recorded, found by Croft Andrew himself. It was not, however, among the surviving material in 1982–3. A few ‘tiny white pebbles’ were reported as coming from the cists. The lack of flint from the site was explained by CKCA: ‘the labourers did not know flint by sight’.

Report on the Cupped Pebble by Fiona Roe

Description

The cupped pebble (Fig. 29) is a medium grey colour traversed by bands of opaque white quartz. It measures 98 mm in length, 62 mm maximum breadth and 57 mm maximum depth. Both cups have uneven edges, but measure approximately 28 x 22 mm and 31 x 23 mm and they are relatively shallow, being around 7 mm in depth. The implement weighs 500 gm.

The pebble appears to be unmodified apart from the two hollows. No attempt seems to have been made to smooth or polish the surface, which is now cracked and scarred in places. Traces of battering at the wider end could well be the result of use as a hammering tool.

The two opposed hollows have been pecked out, leaving a rough surface. There are no traces of pecking elsewhere, to reshape the pebble, which remains somewhat irregular.

Distribution

At the time of writing 200 or so cupped pebbles are known from England, Scotland and Wales. All except 10 of these have two opposed hollows, the remainder having only a single hollow. The question remains open as to whether this type was never a very commonly made implement, or whether so few have found their way into the archaeological record because they mostly occur as loose finds, and are unprepossessing in appearance. A relatively large proportion are known from Cornwall, where a current total of 22 finds may be compared with a mere one each from Devon, Somerset and Wiltshire.

Petrology

The cupped pebble is made from a medium grained sandstone, grey in colour, and veined by four or so bands of white quartz. It is superficially stained in places with

a blue/purple substance, suggesting that ink may at some time have been spilled over the implement.

Examination under a binocular microscope showed that the rock consists largely of moderately well sorted quartz grains with a scatter of mafic material set in a light grey matrix. Suitable material is available locally amongst the sedimentary rocks of the Upper Carboniferous Culm Measures, which in this area are divided into the Crackington Formation, upon which the barrow is situated, and the Bude Formation a little further to the north. Pebbles from both formations occur as beach drift all along this stretch of the north Cornish coast, so that a usable pebble could have been selected from any local beach that was accessible. Bearing this in mind, a decision was taken against thin sectioning, since more detailed microscopic examination would not in this case be able to supply further useful information.

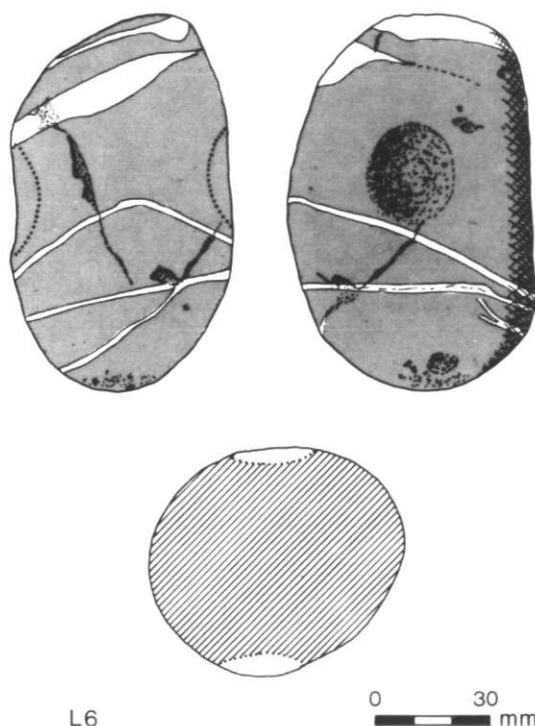


Fig. 29
Lousey Barrow: cupped pebble from the ditch bottom (½). Drawn by Fiona Roe.

Dating

A surprising number of cupped pebbles (13%) do come from archaeological contexts of one kind or another, though most of these do little more than demonstrate a need to record further and more secure associations.

Mesolithic:—

A Mesolithic date for some cupped pebbles has long been considered a possibility, but, despite the existence of around a dozen candidates, it remains impossible to

produce incontrovertible evidence. More often than not the problem is one of admixture of later material.

Neolithic and Bronze Age:—

There are also no associations that suggest an unequivocal Neolithic setting for cupped pebbles, though there are about five finds from possible Neolithic contexts. Turning to associations which are of supposed Bronze Age date, an element of consistency can be discerned, since no fewer than seven of these implements have been recorded from barrows, and another two from ring ditches.

For this period, however, there is some danger of admixture of material from earlier occupation in the immediate vicinity of the monument, and also in the area which provided any barrow material.

Further finds from Cornish barrows are prominent in the list. At Otterham a cupped pebble was found amongst turves covering an inner cairn within the barrow (Dudley, 1961, 74 and Pl. IX). At Carvinack a cupped pebble occurred on the old ground surface preserved under the barrow (Dudley, 1964, 432 and Pl. VIII, 5). A third Cornish association is less satisfactory, coming from an Iron Age hut immediately adjacent to the barrow at Glendorgal (Dudley, 1962, 15), but seems more likely to belong with the barrow than with the Iron Age occupation.

These three finds provide a good local context for the implement from Lousey Barrow. Cupped pebbles are also known from two Yorkshire barrows dug by Canon Greenwell, Rudston LXIX, where the primary burial was accompanied by a Food Vessel (Greenwell, 1877, 270), and the Carmire barrow at Bulmer (Rutter, 1971, 52; Greenwell No. CLI).

Finally, a broken cupped pebble was recovered from the ditch of Barrow 1 at Trelystan, Powys (Britnell, 1982, 151 and Fig. 25, S2), providing a convenient parallel to the circumstances of discovery at Lousey. Careful consideration of the flints and pottery from Trelystan has led to the suggestion that the cupped pebble should here be contemporary with the pre-barrow period, which at this site included both Grooved Ware and Beaker, with flints appropriate to both (Britnell, 1982, 139). At Lousey, the virtual absence of flintwork provides negative evidence for any pre-barrow material, but the general context for this cupped pebble and others from barrows seems to be similar.

Use

The general appearance of cupped pebbles suggests in the first place that they could have been used as all-purpose hand-held hammer stones, the two hollows providing a firmer grip for the hand. One end of the Lousey implement is battered as if it had been used in this way. Examination of other cupped pebbles shows that some, but by no means all, possess battering marks at either end.

An alternative use for cupped pebbles could have been as nutcrackers. Anyone who has experienced cracking hazel-nuts with a stone will know of the frustration incurred when the uncracked nut flies off at a tangent. A nut placed in a small hollow, such as those found on cupped pebbles, would be held safely in place; experiments with a newly made cupped pebble and a flattish hammer stone have shown that this method is extremely efficient. The other hollow was perhaps only added for secondary use of the tool as a small hammer stone. Modern analogies for this type of nutcracker do exist in wood, while an independent suggestion that cupped pebbles could have been utilised in this way has recently been made by Spenneman (1985).

With this interpretation the number of cupped pebble finds from Cornwall may testify to the abundance of hazel-nuts in the area in prehistoric times.

Discussion

It is not impossible that this large barrow was built in two stages; in the best preserved portion, shown in the E—W section, the upper cairn can be seen lying on a platform suggesting the mound had been levelled off (or built level originally) to take a free-standing upper structure. If the stones were to cover the whole mound, and be revetted at ground level with a wall round the periphery, such levelling would have been less necessary. The 'steps' noted on the north side of the mound could be connected with the construction of this upper structure, as could the posthole penetrating the clay dome on the south side.

It is not known whether the revetment wall was confined to the south side. The vertical cut in the clay capping suggests it could be a later feature, built to contain the mound on this side, which may have consisted of a collapsing upper cairn.

If the excavator's interpretation is correct, the burials beneath the central cairn were a cremation and an extended inhumation, but since the minimum of details and no tangible remains have survived, few conclusions can be drawn, except that the two burials presumably relate to the two Beakers, one of Middle and one of Late style. The nature and purpose of the five cists are unknown, but seem to have analogies at Glendorgal (Dudley, 1962) while the small white pebbles may have a ritual significance of a local Cornish nature (Miles, 1975, 72). A pit from beneath a barrow (CR II) at Colliford has recently given a date of 1540 ± 90 bc and also contained small white quartzite pebbles (Griffiths, 1984, 64).

Palaeoenvironmental work on Cornish sites in recent decades has shown how forest clearance led to the spread of open grassland and moorland during the Bronze Age (Keeley, 1984) and it is interesting to note that the nut-producing hazel was one of the most abundant species in the earlier period when barrows were being built (Dimbleby, 1963). This lends support to Fiona Roe's suggestion *above* that the cupped pebble (Fig. 29) may have been a nutcracker. A recent note on this class of artifact, known not only from the European Neolithic but also widely distributed in Africa, Asia and Australasia, makes the same point (Spenneman, 1985).

Only a very small proportion of this large barrow was excavated, as can be seen from the plan. Excavations of the remainder might shed some light on the question of whether the mound was enlarged, and if so, when and by whom. In this connection, it may be noted that the largest of the recently excavated Colliford barrows contained an inner cairn surrounded by a turf stack and cairn ring, comparable, although smaller, to Lousey barrow (Griffiths, 1984). It is to be hoped that one day a research project may be mounted which would include the examination of other selected barrows in the group and perhaps the restoration of Lousey Barrow to its full pre-1940 stature. The drawings and photographs exist to make such a restoration possible. The linear cemetery, with Lousey Barrow as its dominant feature, is a fine example of a Bronze Age barrow group in North Cornwall and was recorded by CKCA during his excavations.

Several barrows have since gone, but their locations are known and most of the others are scheduled (*see* Lousey Barrow: Appendix, *below*). It should also be recalled that less than a mile to the south, at Cargurra Farm, Hennett, a gold lunula was reported to have been found in a barrow (Pearce 1983, 411, No. 71).

Lousey Barrow: Appendix

Barrows on Lousey Barrow ridge, from NW to SE

CKCA's notes, reproduced verbatim from field notebook, with added SMR details

CKCA No.	NGR	SMR No.	Description
1	SX 1300 9349	SX 19 SW,1	The outermost of 3 has disappeared.
2	SX 1301 9347	SX 19 SW,2	The outer one remaining is about 15 paces diameter c. 3½ ft high and has been dug from top as well as being pared at side. No sign of ditch. <i>Scheduled.</i>
3	SX 1305 9345	SX 19 SW,3	Larger one stands nearly 5 ft high, 25 paces over. No sign of ditch. <i>Scheduled.</i>
—	SX 1341 9321	SX 19 SW,4	Lousey Barrow. <i>Scheduled.</i>
4	SX 1352 9315	SX 19 SW,5	In hedge of Lousey field: about 4 ft high, c. 70 ft diameter with hedge over it. Peristalith and cairn. <i>Scheduled.</i>
5	SX 1365 9315		In middle of next field: a very low barrow not marked on OS, about 12–18 in. high and c. 50 ft diameter. Other irregularities on north side.
6	SX 1379 9309	SX 19 SW,7	In hedge: a fine round topped one about 7½ ft high by 95 ft diameter. Ditch obvious on E side of hedge where also is a dimple in the crown. <i>Scheduled.</i>
7	SX 1383 9307	SX 19 SW,6	Small one in broccoli field. Ditched, truncated, c. 55 ft diameter and c. 2½ ft high. <i>Virtually gone.</i>
8	SX 1391 9305	SX 19 SW,9	Next, c. 54–55 ft diameter x 4 ft high. ?Ditch, surface disturbed. <i>Virtually gone.</i>
<i>Other possible barrows on N side:</i>			
9	SX 1405 9305		In middle of next field, very small one. In next field, 3 barrows.
10	SX 1420 9305		1 — to south, very small, faint. <i>Gone.</i>
11	SX 1420 9309	SX 19 SW,10	2 (N) 50 ft diameter x 2 ft high; ?ditch, perhaps not. <i>Gone. Scheduled.</i>
12	SX 1423 9308	SX 19 SW,11	3 (E) c. 53 ft diameter x 4 ft high; ?ditch. ? <i>Gone.</i>
13	SX 1427 9308	SX 19 SW,12	Next field: one about 85 ft diameter x 7 or 8 ft high. Hole in top. ?Ditch (no evidence). This is the field of the rectangular earthwork. <i>Scheduled.</i>

TRELIGGA COMMON

Introduction

The sites described below lie on Treligga Common, a stretch of land between Treligga village and Start Point, running parallel to Treligga cliffs which reach a height of 300 ft (91 m) at their southern end (Fig. 30). During the 1939–45 war the land, owned by the Admiralty, was a Fleet Air Arm Emergency Landing Ground. The southern part is now farmed and the barrow group is no longer visible or accessible. The northern part, up to Start Point, remains as scrub and can be reached by footpath from Trebarwith. Up-to-date information on the sites is available from the Sites and Monuments Register of the Cornwall Archaeological Unit in Truro.

The local geology consists of Upper Devonian slates, with veins of quartz, and the well-known slate quarries of Delabole are only 2 miles (3.2 km) inland to the east. The barrow group was marked on the Ordnance Survey maps, and Site 7, where the wartime excavation began, is marked on the OS 6 in. map (1907 edition) as a Trig station, but without altitude figures. This was the most southerly and most prominent of the group and even after excavation it remained visible until continuous

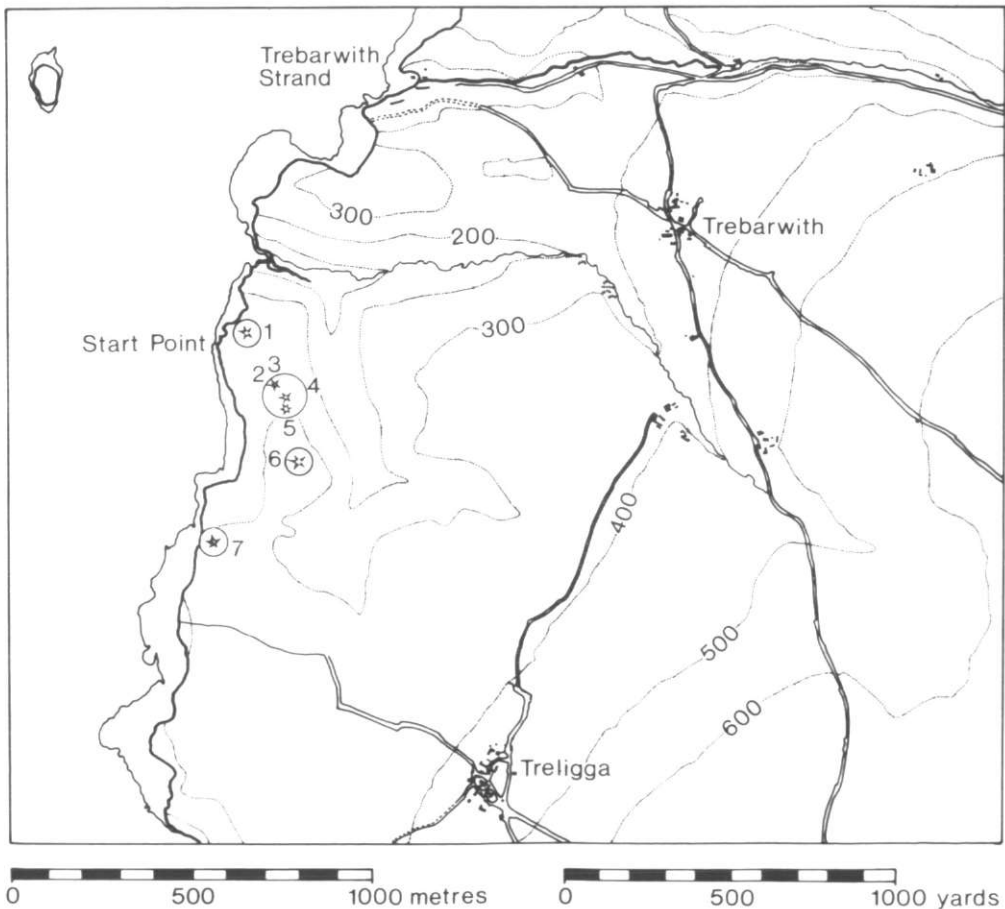


Fig. 30
Treligga barrow cemetery: location map.

ploughing finally caused its disappearance by 1973. In January 1941 the mound was partly destroyed when a 12 ft (3.7 m) trench was dug through it by a mechanical scraper. As a result of this unexplained action, and the resulting outcry, C.K. Croft Andrew was sent in by the Ancient Monuments Inspectorate to retrieve what information he could from the mutilated barrow. Whilst there, he also managed to examine seven other potential barrow sites on the land between it and Start Point. Of these, three contained archaeological material (Sites 1, 2 and 5), three were natural rock knolls and the last 'had been decapitated by a scraper and told us nothing'.

Two further sites (8 and 9) on Treligga Common are marked on CKCA's area map but no details concerning them survive. The excavations lasted from January to mid-April 1941.

The surviving records consist of a notebook (shared with Nancekuke and Trevellas) with the excavation data on all the barrows muddled up together, several sketch plans and other drawings, and the finds. These latter were very mixed up, with burst bags, material that had been rebagged, empty bags etc. From these the following reports have been compiled, in the order in which the sites were dug, starting with site 7.

BARROW 7

NGR: SX 0431 8515 SMR: SX 08NW,10

Summary

The mound, originally 6–8 ft (1.8–2.4m) high, was surrounded by a narrow ditch. An inner walled mound c. 18 ft (5.5 m) in diameter, with 'charred clay and debris from the funeral pyre' piled over it, is believed to have covered the central deposit. A small cist with an inverted pot was found under the surviving portion of this mound. Two cupmarked slate slabs were also found, one *in situ* beneath the inner wall.

1941 Excavations

Since the scraper had cut a trench 12–15 ft (3.7–4.6 m) wide through the centre of the barrow (Fig. 31), it was not possible to get true cross-sections of the mound. As will be seen from the plan (Fig. 32) the two N–S sections which draw the sides of the machine-cut trench, are displaced to west and east of centre, while the E–W cross-section was dug subsequently and is therefore missing the central levels.

The section measurements are not always adequate and consequently the drawings (Fig. 33) leave much to be desired; details of the centre are missing for the reason stated, while the area of the mound between the central stone structure and the ditch remained undug so that only the sparse details provided by the sections are available. However, these together with further, though minimal, information in the notebook have enabled a tentative plan of the barrow to be reconstituted and the following information to be presented.

Barrow Construction

The ditch

This was narrow, no more than 1 ft (0.3 m) wide at the base, and neatly cut in the shillet. Apart from an irregularity on the north side, the ditch appears to have been an almost perfect circle and measured 65 ft 8 in. (20 m) diameter to centre bottom, according to the excavator. This measurement is confirmed in drawing out

the E–W section (Fig. 33) — the only one to bisect the mound through the centre — but appears to be slightly less (63–64 ft (19.2–19.5 m) diameter) on the N–S axis, though the accuracy of the plan is doubtful.

The ditch filling consisted of a fine lower fill of brown earth and small shillet (layer 7) and an upper stony fill (layer 6). In the E section a ‘band of sandy wash’ was noted between these layers. Some larger stones overlay the ditch on the east and were thought by Croft Andrew to have ‘rolled down from an upper cairn’, while mention of a ‘band of slates high up about 6–10 ft (1.8–3.1 m) in from the ditch’ in this section lends some weight to this interpretation.

The mound

It is not clear whether the old land surface was stripped of its assumed turf cover in the area enclosed by the ditch. A dark brown stony band (5) was noted over the rotted shillet (5a), stained red and red/black in all sections especially towards the centre, and this has been interpreted as an old turf line. However, it is possible that the A horizon had been removed, since the surviving layer is very thin even allowing for the slight soil cover in this exposed position.

The limit of layer 5 is marked on the plan and is considerably closer in to the ditch on the east. It is possible that elsewhere it has been ploughed out, but that there it was protected by stones.

An inner stone wall had been built round the central area, but only the western arc of this structure survived (Fig. 34) and there is no way of knowing whether it was continuous or where the entrance was. The walling consisted of slate slabs and quartz boulders — the latter only in the lower levels. On the north, a cup-marked



Fig. 31

Treligga 7: general view of machine cut through site.

TRELIGGA, SITE 7

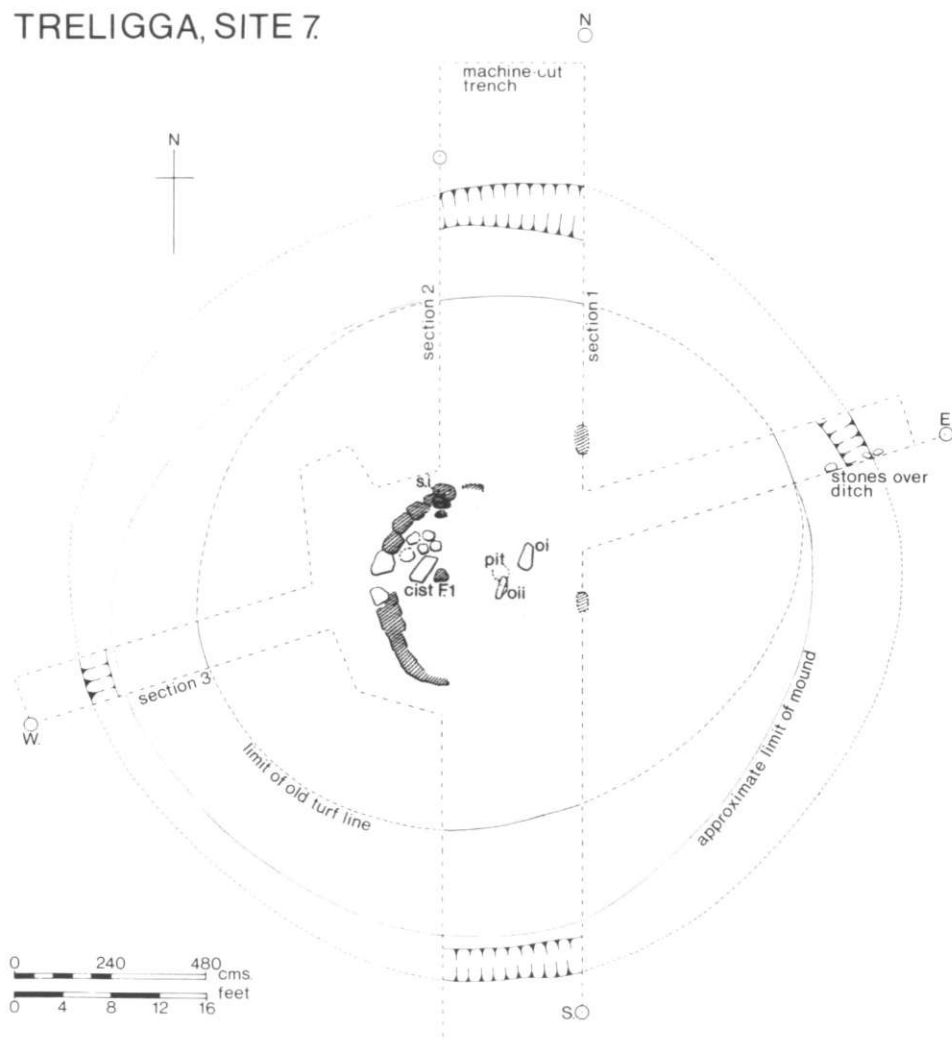


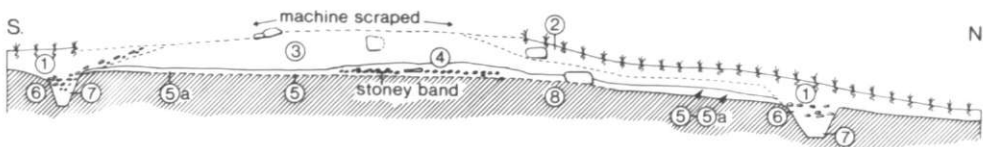
Fig. 32
Treligga 7: plan.

stone (Si) formed the foundation of the wall. A second sup-marked stone (Sii) was also found after being disturbed by the scraper, but no information is given as to its exact original position though a rubbing was taken (Fig. 35). In and over the stone structure was found pink clay, small shillet and fragments of charcoal (layer 4). This is described by the excavator as 'pyre material' and was believed to be the charred material from the burial pyre. Beneath the stone walling on the NW was a small cist (P1).

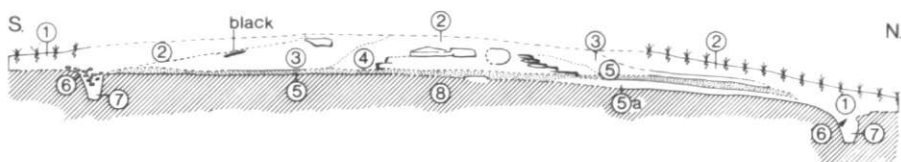
A pit at the approximate centre of the barrow is mentioned as 'the orthostat pit' and only the depth (c. 6 in. (150 mm)) is given where Section 3 cuts it. The orthostat itself (Oi) was presumably dislodged by the scraper, and its position is marked, but no details are given of it or of its pit. A second stone (Oii) to the NE of the orthostat, is carefully recorded and measured.

TRELIGGA, SITE 7.

SECTION 1



SECTION 2



SECTION 3

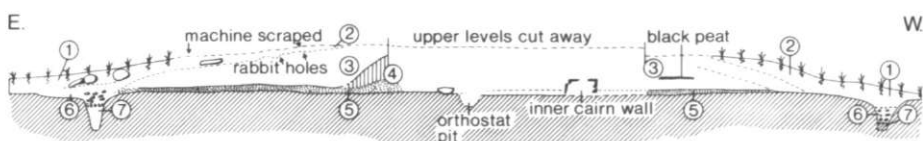


Fig. 33

Treligga 7: sections 1, 2 and 3: (1) turf and topsoil (2) disturbed earth over mound (3) mottled yellow clay (4) pink clay and shillet and charcoal (5) red/black layer (?old turf) (5a) brown stony layer (rotted shillet) (6) stony ditch fill (7) brown earth and shillet (primary ditch fill) (8) shillet bedrock.

Over the stone structure and extending to the edge of the ditch was piled a blanket of yellow mottled clay (layer 3), apparently stone free and, according to CKCA, relatively waterproof. Only a small portion of this clay layer was excavated apart from the digging by the machine; but as will be seen from the plan, it formed a considerable proportion of the total mound. The barrow may have been finished off with a layer of earth and shillet (layer 2) though the surviving talus of this layer may have a later origin.

Mention is made in the notes of an upper stone structure, particularly in connection with the large stones over the ditch on the east and high up in the mound, and also the 'stone slide' from the mound on the southeast. There seems little further evidence to suggest any such structure, however, and the stony fill of the ditch, which occurs in all sections and in one instance is described as coming from both sides, can be accounted for by the stony nature of the soil over the mound and on the surrounding land.

Features beneath the barrow

F 1 — Cist. Little information is given as to construction and it is not known

whether it was in or above the ground level. Dimensions, from a bad photo and measurements in the notebook, indicate a rectangle c. 2 ft 4 in. x 1 ft (0.7 x 0.3 m) and just under 1 ft (0.3 m) deep. It contained an inverted pot (P4) beneath which was dark earth thought by CKCA to contain the remains of organic matter, possibly foodstuffs. A sample scraped from the pot in 1984 was submitted for analysis and the results are given in Treligga: Appendix B, *below*.

F 2 — Cup-marked stones

Si: slate slab found beneath walling of inner mound described as having its 'perforated end protruding outward from the northern kerb of the barrow, on the brink of the ditch' (Croft Andrew, 1945, 43). A sketch shows it with three cup-marks, but the notes mention it as having four. There is some confusion here, as it would not have been near the brink of the ditch as it was under the inner walling. Secondly, the sketch plan of the inner wall, in which it figures, clearly shows three cupmarks in a stone measuring c. 1 ft (0.3 m) on its long (E—W) axis.

Sii: Slate slab disturbed by scraper. A rubbing was taken and this is reproduced as Fig. 35. (*note*: Measurements of the cup-mark are given on the drawing as $3\frac{3}{8} \times 3\frac{3}{4} \times 1\frac{3}{4}$ in. deep and in CKCA's notes as $3\frac{1}{2} \times 3\frac{1}{4} \times 2$ in. The hollow is clearly irregular, which no doubt explains the discrepancy in measurement).

F 3 — Central stones

Oi: 'orthostat'. Its position was carefully measured but no precise measurement is given of the stone itself, though it appears to have been c. 2 ft (0.6 m) long, presumably set in the pit mentioned above, near the geometric centre of the barrow, and to have been of quartz.



Fig. 34
Treligga 7: central area, showing arc of walling.

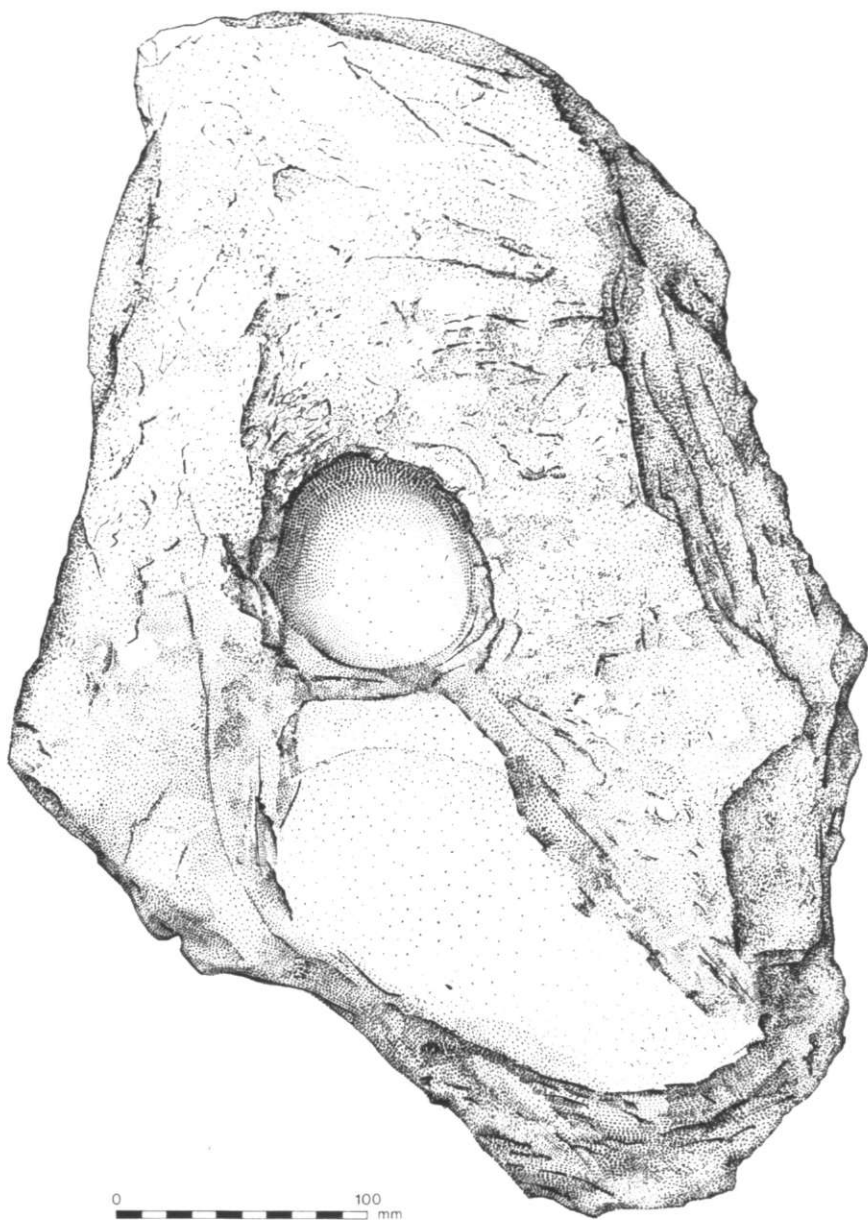


Fig. 35
Treligga 7: stone (Sii), redrawn from CKCA's rubbing.

Oii: Carefully measured in position, like the orthostat, but its dimensions are also given: 19 in. (483 mm) long, 13 in. (330 mm) (max) wide, 5 in. (127 mm) N end, 9 in. (229 mm) S end. This is presumably the same quartz stone measured in section 3 where it is described as 'quartz in shillet north of section, only its low toe crossing because on brink of orthostat pit'.

The Small Finds by Frances Healy

Pottery (Fig. 36, Table 4)

P4, from the cist, is undecorated and has no rim. Form and fabric suggest that it is a food vessel. Several completely undecorated food vessels and food vessel urns are known from Cornwall, including examples from barrows at Tregulland, Treneglos (Ashbee, 1958, Fig. 6); Treworrick I, Colroger and Newquay (Patchett, 1944, Fig. 9: E1, E3, E6). P4 may alternatively have been decorated only on the rim, like a food vessel from Carnkief II, Perranzabuloe (Patchett, 1950, Fig. 3: E14). Available radiocarbon dates indicate that food vessels were made and used in Britain between c. 1700 bc (2100 BC) and c. 1300 bc (1600 BC; Burgess, 1974, Fig. 25).

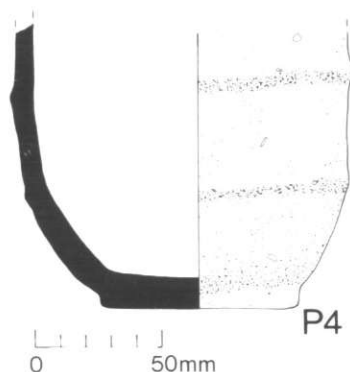


Fig. 36

Treligga 7: ?food vessel (P4) from the cist (1/3).

Lithic material (Fig. 37, Table 5)

Struck flint from the barrow consists of a small, heavily-patinated blade and a broken flake from 'main cut ... inside stones', a fragment of broken-up beach pebble from 'W cut . . . immediately outside floor of ring wall', and an unstratified single-platform blade core and flake. Also unstratified were two flint 'pot-boilers' and a pebble tool (L7).

Discussion

The surviving arc of walling beneath the mound has features such as cup-marked slabs and use of quartz which link it with the enclosure walls of Barrows 1 and 2 in this group. Unlike them, however, it was then concealed within a larger mound and surrounded by a ditch. If it was the primary enclosure, with off-centre cist, it recalls Cataclews (below) but with the funerary deposit a child inhumation with Food Vessel, rather than a cremation as at the latter. Alternatively the cist contents can be likened to the pots deposited without burial remains at Crig-a-Mennis and elsewhere. The Food Vessel and cup-marked slabs link the site with Tregulland (Ashbee, 1958) and it is interesting to speculate what other features found at that site such as stake-circles and 'satellite' burials, may have lain beneath the large amount of mound which remained unexcavated (see plan, Fig. 32) between the primary enclosure and the 'ditch'. In common with other sites with internal features, it is impossible to tell how long a time elapsed between the initial stage of enclosure with central orthostat and cist, and the building of the mound with material from the ditch. In

the absence of relevant soil samples, it is not possible to deduce the nature of the 'pink clay with charcoal' of layer 4, the primary mound, but the yellow clay overall is assumed to be subsoil from the ditch.

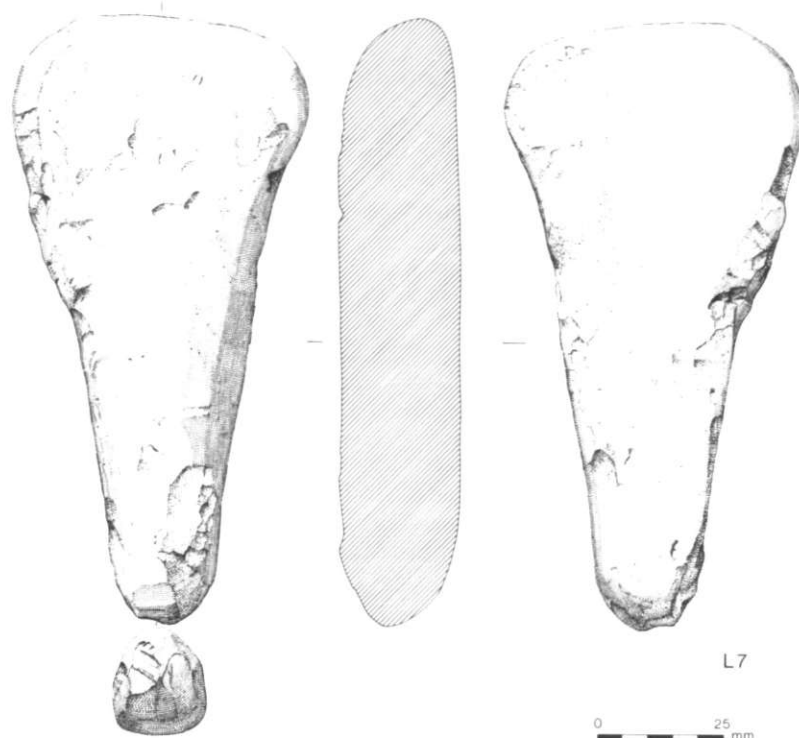


Fig. 37
Treligga 7: pebble tool (L7) from unknown context (2/3).

BARROW 1

NGR: SX 0443 8573 SMR: SX 08NW,4

Summary

'A slate cairn 28 ft (8.5 m) in diameter and 18 ins. (0.45 m) high, on knoll at outer end of Start Point. No central deposit or fire, no grave goods, but near centre two parcels of calcined and comminuted bone had been deposited in crannies in the bedrock. The cairn was formed by inclined slates leaning toward centre; the margin of the cairn was defined by a ring of boulders of white quartz'. Two further deposits of bone are mentioned, on the E side. Analysis of the cremations show that up to five individuals are represented by the remains.

1941 Excavations

This exposed site, crowning a rocky knoll on Start Point, was the most northerly of those excavated and was, in CKCA's own words 'an uncomfortable place to work in a gale'. No account of the excavation method is given, but from photos and notes it would appear that two 4 ft (1.2 m) wide trenches were dug across the mound, to

give the two cross sections (Figs. 38—39). The underlying shillet rises in a series of rock shelves, and owing to the steepness of the terrain the E—W section was measured in two parts, outward from a high point on the mound. The cairn ring was excavated, though no plan of the stones exists from the west side; the NE and SE quadrants appear to have been stripped, along with the central area. The notes, however, are disjointed and muddled up with Barrow 2, while the uncaptioned photographs are of little help, though one or two are clearly of this site in view of the ring of white quartz and bedrock of rock shelves. The following description of the barrow and its contained features, together with the reconstructed plan and sections, is based on the evidence from labels on tins and cartons containing the bone deposits, and the notes themselves. Its accuracy cannot, however, be guaranteed. No charcoal or other environmental samples have survived from the excavation.

TRELIGGA, SITE 1.

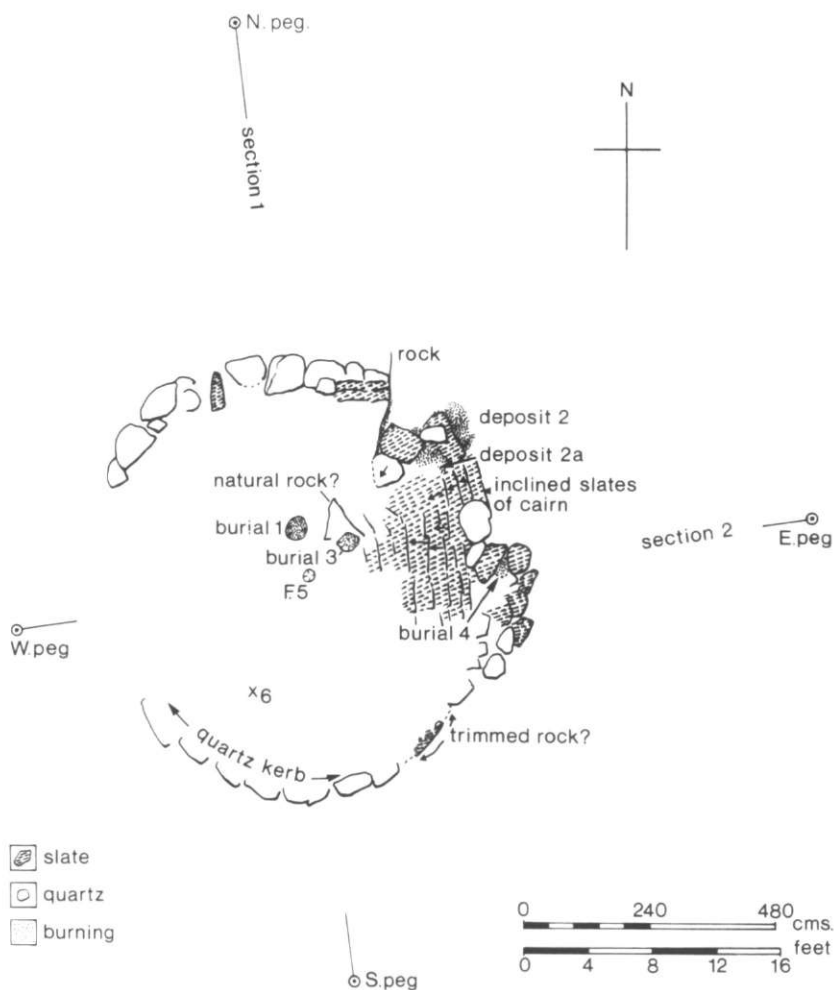
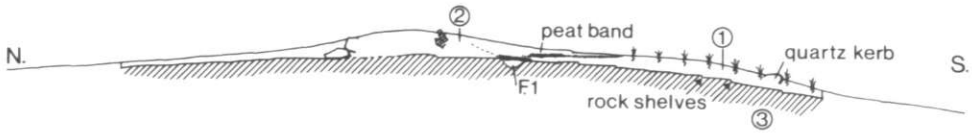


Fig. 38
Treligga 1: plan.

TRELIGGA, SITE 1.

SECTION 1



SECTION 2

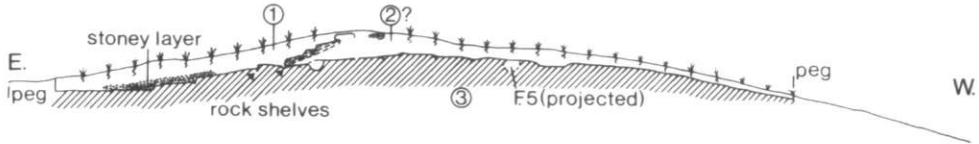


Fig. 39

Treligga 1: sections 1 and 2: (1) turf and topsoil (2) brown earth and stones (cairn material) (3) natural rock.



Fig. 40

Treligga 1: remains of cairn, with large pitched slates.

The Cairn (Fig. 40)

A cairn of slate slabs, laid on edge and inclined toward the centre 'very much as the turves were set at Nancekuke' (see *above*), covered cremation burials of 4–5 adults. This slate structure was surrounded by a kerb ring of white quartz boulders. Measurements for these are given for a large part of the circumference, except for the west side, and show a consistent diameter of 28 ft (8.5 m) (outer edge). While the bulk of the kerb appears to be of quartz (marked in blue pencil in the notebook) slate does occur sporadically (marked in green) especially around the burials on the NE and E side (F2 and F4 *below*). On the southeast the excavator thought the natural bedrock had been cut back to the line of the kerb ring. The highest point of the cairn was on the E and N, where the slate structure survived best. Elsewhere it appears to have been totally denuded.

The features associated with the cairn are variously described in the notes as 'burial', 'bone pit' and simply 'deposit' — and the numbering is somewhat confused. Four deposits/burials are mentioned in the notebook, but only three in the published paper. As far as can be ascertained, they were as follows:

F 1 — (Burial 1): Pit containing cremated bones, near centre. (Fig. 41 and sketch in notebook). This appears to be rather shallow, irregular and, in view of the excavator's mention of the bones 'in crannies in the bedrock', this may be all it is. A shillet layer/black turfy sod' is noted as covering the burial.

The tin marked 'Deposit 1', assumed to be the cremation from this feature, was submitted for analysis and proved to contain the remains of a young adult, possibly female. (Treligga: Appendix A, Cremation 5).



Fig. 41
Treligga 1: central area: F1 and F3?

F 2 — (Burials 2 and 2a): An 'alcove' on the NE of the barrow is first described as having a rock ledge on the W side and charcoal on the SE. A separate description of 'Deposit 2' appears to be just beyond this alcove on the E. Further on in the notes, Burial 2a is described as lying 'at the SE corner of the alcove in brown earth under a slate slab'. This dark brown soil which 'encompasses and passes beneath the bones', also contained charcoal and reddened stone fragments. It was noted that the rock ledge on the W of the recess was reddened. A considerable amount of the deposit(s), whose maximum depth reached 10½ ins. (0.27 m), was collected. On examination this was found to contain the remains of a young adult, possibly female, and also a bronze awl (Fig. 43). A second individual is also thought to be represented. (Treligga: Appendix A, Cremations 1 and 2).

F 3 — (Burial 3): A Pit containing bones, near centre. (Fig. 41 and in notebook). This was described as 'Burial 3 in rock bowl near No. 1' and also as 'Bone Pit 2'. No good description of pit or contents survive, though a sketch plan shows what appears to be slate (?natural) slabs around the rock bowl. The cremation collected from this feature proved to represent one adult (Treligga: Appendix A, Cremation 3).

F 4 — (Burial 4): A small deposit of cremated bone was found on the E side in a rock-cut pit c. 11 x 20 ins. (0.28 x 0.51 m) across. Apart from the bones the pit contained 'reddish burnt earth, some black peaty earth and a little charcoal'. The burial proved to be that of a not-so-young adult (Appendix A, Cremation 4).

F 5 — ? Central Stone-hole: In the measurements of the E—W section, mention is made of a hollow in the rock 9 in. (229 mm) N of the section. In the absence of further details it is not possible to know what the extent or significance of this feature may have been, though it is at the geometrical centre of the cairn.

The Small Finds

Bronze Awl/Pin (Fig. 43)

This was found on sieving Cremation 1 and has been conserved in the Laboratory of the Institute of Archaeology. The awl is 34 mm long, with possible broken distal end, and tapers to a narrow point.



Fig. 43
Treligga 1: awl/pin from cremation 1 (1/1).

Awls are associated with female cremation burials in Wessex and elsewhere, though few have come to light in Cornwall and Pearce (1983) only lists four from the county: a copper awl from Gwithian (62a), an ?awl from a barrow at Harlyn Bay (100), one from Gugh, Scilly (150) and one from a midden at Constantine Bay (77) found recently. The Gwithian example is not illustrated but was found in layer 8 dated to the EBA; the one from Gugh has a square butt. The Harlyn specimen,

although longer, compares most closely with the 'awl' from Treligga and was associated with a Trevisker urn.

Pins, however, are less rare and several are known from EBA contexts (Pearce 1983, nos 32, 53, 62, 101, 109, 120e and g) including Gwithian and Harlyn Bay. It is possible that the Treligga example is the lower part of a broken pin shaft rather than an awl.

Pottery (Fig. 42, Table 4)

P5, which may have been recovered from the barrow, is hand-made and of gabbroic fabric, but otherwise has no distinguishing features.

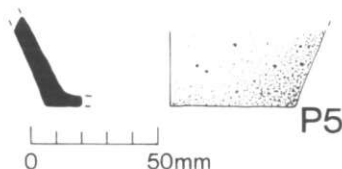


Fig. 42
Treligga 1: base fragments (P5) from unknown context (1/3).

'*Holed stone and flint*' (marked F6 on plan)

Measurements for these are given in the notebook, but they were not with the other material from the site. One unstratified split flint beach pebble was also found.

Discussion

The presence of multiple burials in this exposed cliff-top situation, surrounded by a ring of white quartz, suggests the site was deliberately chosen as a cremation ground, but also raises certain questions. Were the burials, which apart from Cremation 1 were very incomplete, token burials only? If so, why was Cremation 1 so much more substantial? Were the individuals represented all female? Were the burials deposited all at the same time, or at intervals over a longer period before the slate cairn was raised over them? What was the relationship between this site and the adjacent Barrow 2 of similar construction, with its elaborate cist containing only one burial?

Despite the absence of diagnostic pottery, it is possible to ascribe to the site a date in the first half of the second millennium on the basis of the EBA association of awls and pins elsewhere in the county and to suggest that it is closely linked with others in the group, especially Barrow 2, in terms of mortuary ritual.

BARROW 2

NGR: SX 0450 8559 SMR: SX 08NW,5

Summary

'A more elaborate cairn (than site 1) . . . raised over and around a central ossuary which comprised a rock-cut pit covered by a cupola of corbelled slate slabs laid flat. Access to the cavity was easily obtained by lifting a large slab which crowned the vortex of the cupola . . .' The mound was 'revetted by neat walling of slate slabs laid flat.'



Fig. 44

Treligga 2: cairn of large pitched slates and corbelled cist, from south-east.



Fig. 45

Treligga 2: general view of excavated site from north-east.

A cremation was found in a pit beneath this wall on the southeast. Remains of a Trevisker style pot were found, together with flints and several cup-marked slabs.

1941 Excavations

As was mentioned in connection with Site 1, the notes of these barrows are intermingled and it is not always clear to which site the various features belong. For this barrow, however, a number of excellent photographs survive, especially of the central cist, and these describe the excavated features better than any words written today can do (Figs. 44–45).

Before excavation the barrow would have shown its 17 ft (5.2 m) diameter kerb wall and the mound stood c. 3 ft (0.9 m) high in the centre. It was totally excavated, as can be seen in Fig. 45, and each quadrant cleared back to some 8 ft (2.4 m) beyond the kerb wall. Like Site 1, the underlying shillet is often irregular and rises as a series of rock shelves, noted particularly on the E and N.

The Cairn

A mound of slate, with some quartz, was raised over a rock-cut burial pit (F1) covered by a corbelled roof. The capstone (Fig. 45) of this roof, which lay just below turf, appears to have been in two halves and the E half to have been removed in excavation. Around this construction were placed slabs of slate, inclined towards the centre and some of considerable size according to the photos (Fig. 48, Layer 3). On the S side, one of the largest stones (described as the 'apex stone') stood proud of the barrow turf. On the N and W smaller slabs appear to have been used. A small inner mound (F6) noted around the cist (F1) is described as 'bedding for the lowest and innermost stones of the cairn'. The cairn was revetted by a wall of horizontally

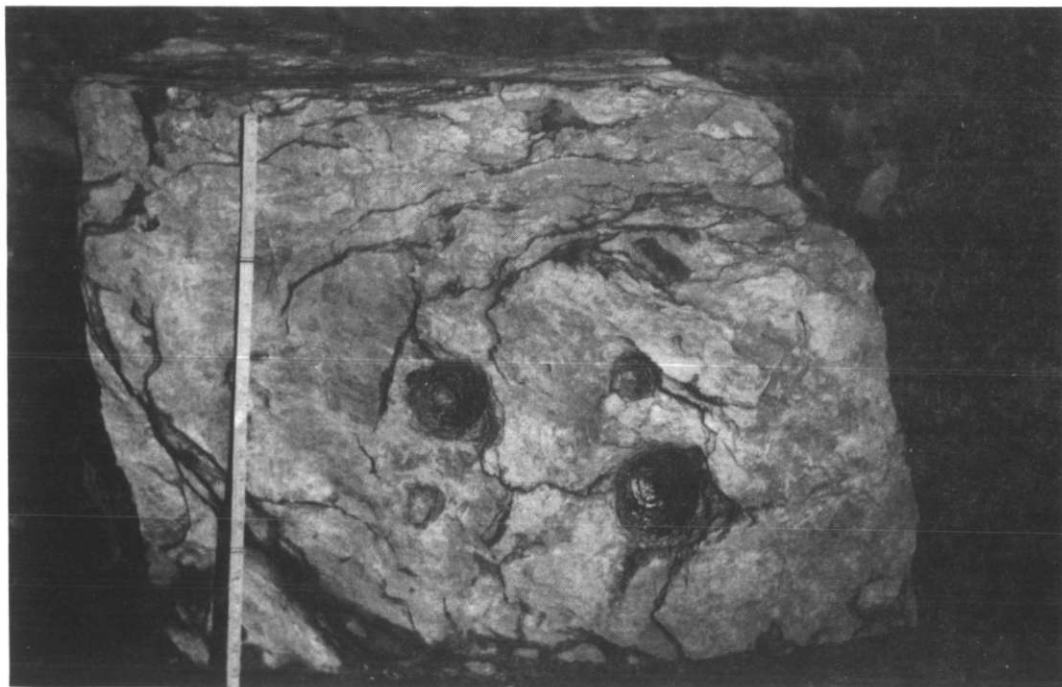


Fig. 46
Treligga 2: cup-marked stone Sii.

TRELIGGA, SITE 2.

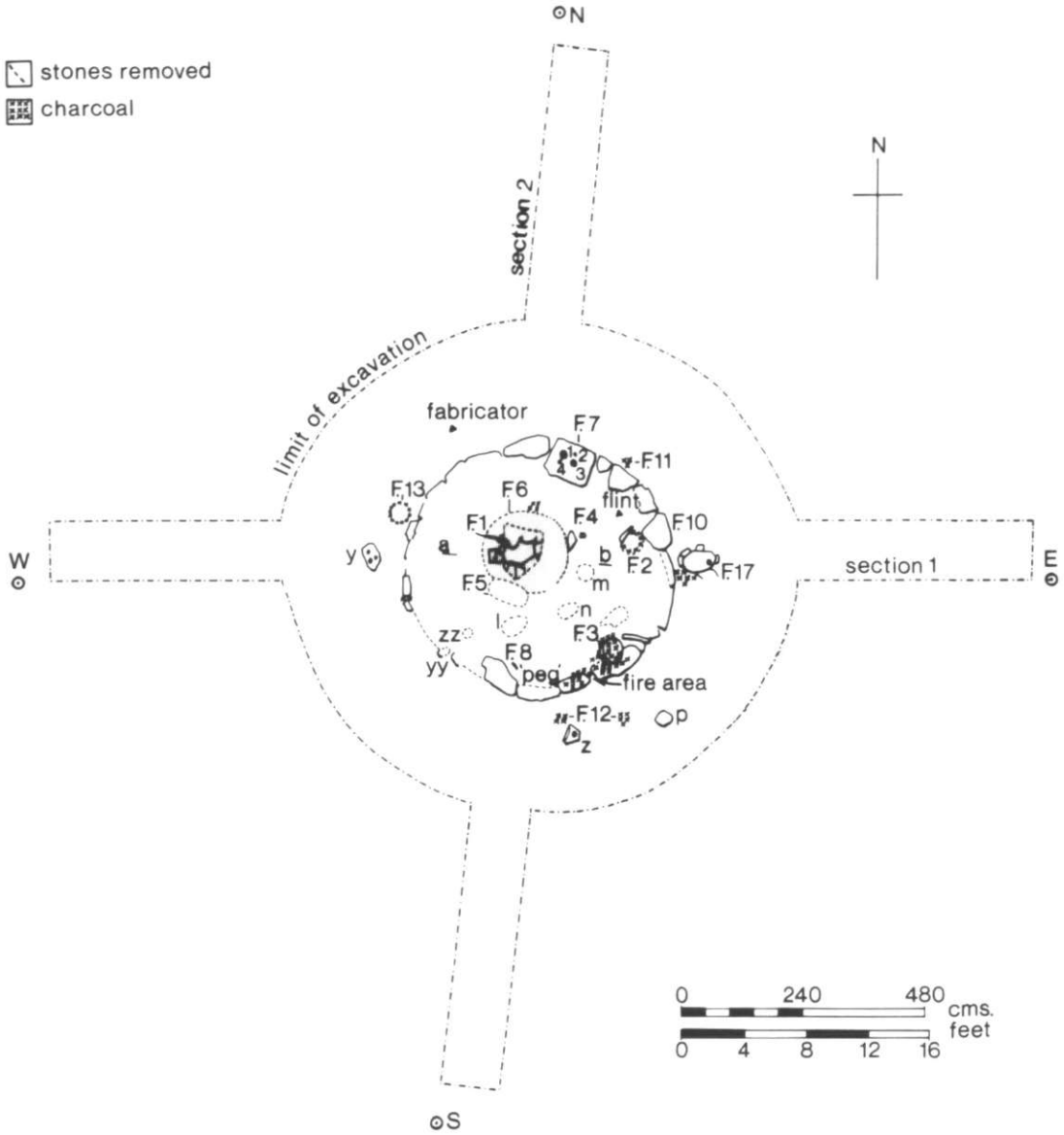
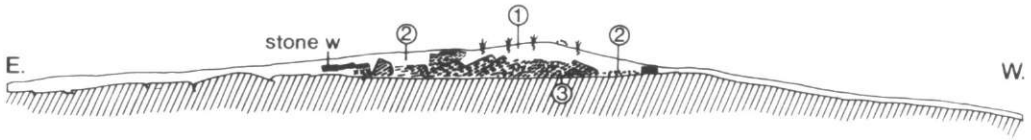


Fig. 47
Treligga 2: plan.

laid slate slabs. Between this kerb wall and the inclined slates there appears to have been a layer of fragmented grey shillet and earth (Fig. 48, Layer 2), formed mainly by the disintegration of the slates. From a sketch in the notebook, it is suggested that in places the interspace was filled with horizontal slabs, and conversely that some of the kerb was of upright slabs, though only one of these is shown in the photos. A few quartz stones were incorporated into the barrow mound, one of which was proud of the turf and is well seen in a surviving photograph.

TRELIGGA, SITE 2.

SECTION 1



SECTION 2

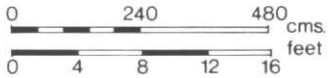
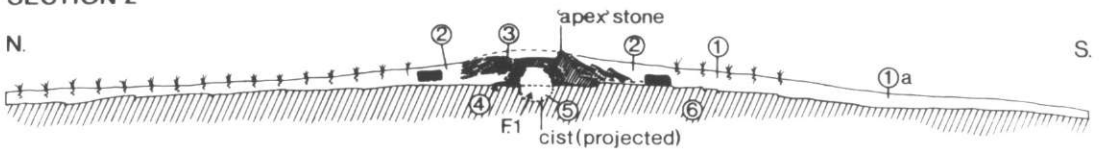


Fig. 48

Treligga 2: sections 1 and 2: (1) turf and topsoil (1a) loose blue shillet (decayed 'natural') (2) small shillet fragments (3) inclined slates of cairn (4) dark brown earth and charcoal over OLS around pit (5) black earth and bone in pit (6) shillet bedrock.

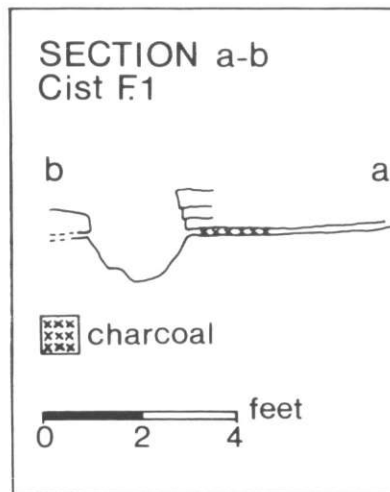


Fig. 49

Treligga 2: section b-a across central cist.

Within the area enclosed by the kerb, and also incorporated in it, were a number of features. Others also believed to be associated with the barrow were found immediately outside the kerb ring (Fig. 47).

Features within the Enclosure

F 1 — Central Cist (Fig. 44). The corbelled structure, with a capstone 3 ft x 2 ft 6 in. (0.9 x 0.76 m) maximum diameter lying below turf, was built to cover a rock-cut pit 2 ft x 1 ft 6 in. (0.6 x 0.46 m) wide, c. 10 in. (0.25 m) deep, with sloping base. On lifting the (broken) eastern half of the capstone, the excavator found 'the whole ossuary full to the brim of soft earth containing powdered charcoal and finely-chopped burnt bone' (Burial 1) and remarked that 'through this opening the material from successive cremations had presumably been shot'. In fact, as will be seen (Treligga: Appendix A, Cremations 6a and b), examination of the material disclosed the incomplete remains of what appears to be only one individual. At the edge of the cist, on the W, was a cup-marked stone. A sample consisting mainly of charcoal (20 gm *Quercus* sp., includes bark) from the sides of the cist also contained some cremated bone (Cremation 6b) but there is nothing to suggest that a second individual is represented. From this sample there is evidence that the cist may have contained the remains of a young adult male.

F 2 — Burial 2?. There is no mention of this in the site book, but the existence of another burial is suggested by the fact that the cremation beneath the kerb wall (F3) is described as 'Burial 3'. (A sample containing a tiny, unidentifiable fragment of cremated bone was labelled 'Treligga 2, Burial 2, outside NE quad' and dated 18.2.41, at which time excavation on Barrow 2 had hardly begun. It is suggested, therefore that this sample belongs with the Barrow 1 burials. Moreover, no features are recorded from outside the kerb on the NE in Barrow 2, except the charcoal patch (F11) outside the cup-marked slab, which was not discovered until March 13 and is precisely recorded).

What then is meant by 'Burial 2' in this barrow? The likeliest contender is on the east side: a 'charcoal patch low down in the natural' beside a small stone on edge, is recorded in the notebook immediately before the description of Burial 3 and annotated later by the excavator as '? remains of another secondary burial?'. No charcoal or cremated bone can be identified as belonging to this feature which in fact seems to be the same as a charcoal patch recorded from just inside the 'offertory stone' (F10) and noted as being c. 6 in. (150 mm) deep.

F 4 — Pot. The discovery of this pot (P6) is recorded carefully as follows: 'the pot consists of parts of the side and base of an extremely soft urn on whose upper part was some cord-printed chevron ornament. It was found tightly imbedded in reddish sandy (top edge of pot) and greyish clayey shilley (bottom of pot) earth, upright, with its base on natural shillet. The immediate packing around the outside of the pot appeared to be different from either the sandy loose brown soil above or the grey clay of the old turf level; viz a medium brown rather clayey loam which was difficult to separate from the sherds. It was already broken (a) in the sense that it cannot have been an entire pot when buried and (b) in that as I carefully unearthed it I saw that it was so fractured that the pieces could not possibly be kept together without plaster or moulding clay. Weather conditions were as bad as could be and light was failing fast. So I was compelled to lift it as best I could. The substance was of damp biscuit consistency'. A later note states that 'the earth around this pot was entirely solid, homogeneous and conformable

with the substance of the barrow. There can be no question of disturbance since the barrow was finished'.

A slate slab immediately west of the pot is recorded as 1 ft 7 in. (0.48 m) long, nearly upright but leaning slightly away from the pot. To the east of the pot a flint was found 'embedded in the brown soil well above the old turf level' and considered to be stratigraphically associated with the barrow. A split beach pebble TR2/2, unillustrated, is thought to be this flint, but this cannot be verified.

F 5 — Stones Around Cist. The large brown slate slab described as the 'apex stone' showed above the turf before excavation and was the first inclined slab to be set against the corbelled structure on the S side (Fig. 48). Three stones (marked L, M, and N) were found below turf level in the mound at c. 5 ft (1.5 m) out from the cist centre on the S and E. Stone N had a half-round notch in its edge. A stone on the NE brink of the cist is noted as being 'cup-marked' but also that the cup 'might be a fossil cast'. The cup-marked stone on the west has been mentioned under F1 above.

F 6 — Inner Mound (layer 4). On dismantling the corbelled cist, a dark brown layer, clayey in places, with shillet and charcoal, was seen to have been piled around the edge of the burial pit, forming an inner mound approximately 2 ft (0.6 m) out from the pit rim. The periphery of this small mound was sketched and measured in the site book and is shown on the plan (Fig. 47). The layer was described as material 'from the ancient surface' and lay directly on a black layer on grey (OLS), providing a bedding for the lowest and innermost stones of the cairn. Under the stones the layer was 3—4 ins. (75—100 mm) thick and was also described as the 'pyre' level on the west side, where the bulk of the charcoal seems to have occurred.

Features in the Kerb Wall

F 3 — Burial 3: The discovery and details of this feature are recorded in considerable detail. The kerb walling was partially removed on the SE; beneath it and sloping eastward, was a fire area (described as a 'burnt floor') with wall slabs and other stones burnt red. Further round to the east, before a kerb stone set on edge, the base stone of the wall was a blue slate measuring 3 ft x 1 ft 7 in. x 6 in. (0.9 x 0.48 x 0.15 m). On lifting this stone a 'bed of grey clayey shillet mixed with charcoal' (Charcoal S4/5) was exposed; under this was the fire area noted on the west and beneath this the burial pit was discovered, filled with 'black peaty soil in which bone occurred all the way down in a perplexing manner similar to that of the . . . central cist'. The fire area extended a further 18 in. (0.46 m) from the pit towards the NW, on a rising slope. The pit was heavily coated with a black and red deposit on the west side, and on being fully excavated measured 17 in. (0.43 m) E—W x 18 in. (0.46 m) N—S, 21 in. (0.53 m) maximum, with 'bowl section' and fairly straight sides. The maximum depth appears to have been only 9 in. (0.23 m).

No cremation relating to Burial 3 was found among CKCA's material. However, a sample which had been rebagged in 1945, owing to the original bag having burst, is labelled 'Sievings (1/9th inch sieve) . . . from paper bag in . . . black box . . . Is this from the central ossuary of Treligga?'.

The analysis (Appendix A, Cremation 7) suggests that this was from a different burial than that in the central cist, and, in the absence of any other sample from Treligga 2, it is tentatively allocated to Burial 3.

F 7 — Cup-marked Stone on NE (Fig. 46). This large slab measuring 2 ft 9 in. x 2 ft (0.84 x 0.61 m) was incorporated into the kerb on the NE and had 4 pits in its upper surface. The dimensions of these pits are recorded as (i) 3½ in. (90 mm) diameter, 2 in. (50 mm) deep; (ii) 2 in. (50 mm) diameter, c. ¾ in. (20 mm) deep (bowl shaped); (iii) 4⅛ in. (105 mm) diameter, 3⅜ in. (85 mm) deep; (iv) 1½ in. (40 mm) diameter, ¼ in. (6 mm) deep.

F 8 — Blue Slate Slab on S with Wood Object. The slab appears to form the base of the kerb wall and the wooden object inside it is measured; both are carefully sketched in the site book, but no further mention is made of either. The wooden object, described as a 'carbonised wood peg', was 10½ in. (270 mm) long and 'perhaps 2 in. (50 mm) thick'. Its remains were collected (TR 2/3) and found to be *Quercus sp* (oak). The fact that CKCA described it as a 'peg' suggests that it was more than just a burnt twig, though the fire over Burial 3 was not far away.

F 9 — Stones Labelled ZZ and YY on SW Side. Stone ZZ: a small cup-marked stone, with a hole on either side, was found apparently just inside the kerb wall, and its approximate position recorded.

Stone YY: the position of the 'marked' (presumably cup-marked?) stone is recorded 'on the rising rock at the margin of the mound'.

F 10 — 'Offertory' Stone. A large stone on the E is described as the 'offertory stone' though for what reason is unclear. Beneath it was an inch of brown 'peat' soil with charcoal, and then another stone, with a cup-mark, which in turn had charcoal under it. No further details are given. F2. (?Burial 3) appears to be associated with this stone (see above).

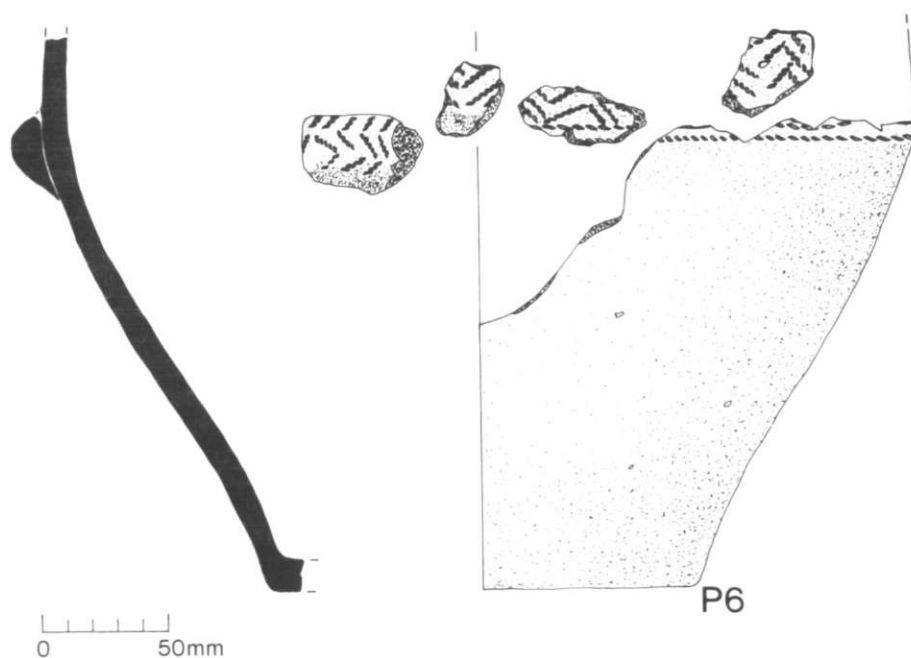


Fig. 50

Treligga 2: urn fragments from pocket of clayey loam in north-east (1/3).

Outside Kerb Wall

F 11 — Charcoal on NE: a small quantity, 5–6 in. (125–150 mm) outside the kerb, between two flat stones.

F 12 — Charcoal on SE: 2 deposits. (i) associated with stone Z (TR 2 s 2) (see Appendix); (ii) between stone Z and stone P; thought to be 'fringe of fire' from Burial 3.

F 13 — Charcoal on W: the position of this patch, c. 18 in. (0.45 m) diameter is carefully measured in and sketched, but no further details are given and no sample was collected.

F 14 — Stone Y: a stone with 3 cup-marks on the west.

F 15 — Stone Z: a stone with 1 cup-mark.

F 16 — Stone P: a stone found 4–5 in. (100–125 mm) under turf, with cup-side downwards.

F 17 — Stone R: a large blue slate slab with cup-mark just outside kerb ring, south of 'offertory stone'. This was lifted and several stones recorded beneath it, described as S, T, U, V (with cup-mark), W and X, but no further details concerning this feature are given.

The Small Finds by Frances Healy

Pottery (Fig. 50, Table 4)

The cord-impressed decoration and widely flaring body of P6 attribute it to Trevisker style 1 (ApSimon and Greenfield, 1972, 326). The solid lug is paralleled at Kent's Cavern, Torquay, Morvah Carn and Port Mellon, Mevagissey (information from Arthur ApSimon).

Lithic material (Fig. 51, Table 5)

The flint found east of P3 has not been certainly identified, but may have been a split beach pebble (TR2/2, unillustrated). A broken flint flake was found on the 'E side just outside ring . . . on shillet'. The naturally elongated shape and the battering at each end of L8 suggest that it was subjected to percussion.

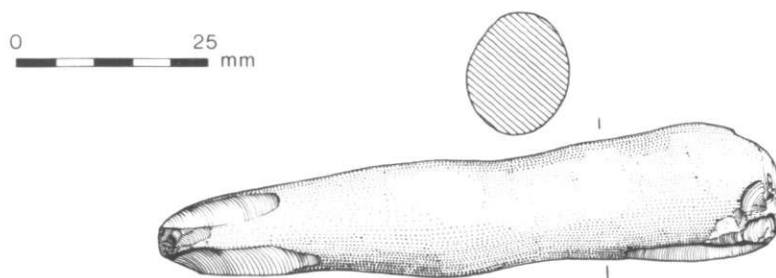


Fig. 51
Treligga 2: ?strike-a-light from unknown context (1/1).

Discussion

An unusually large number of cup-marked stones were found in this site, incorporated into the kerb ring and both within and without the enclosed area. The construction of the cist, with its carefully corbelled superstructure and enormous pitched slates forming the cairn has not been encountered elsewhere in Cornwall so far as is known. Although admittedly small, this site with its suggestion of elaborate ritual — charcoal/fires, cupmarked stones and well-built 'mortuary house' — implies a considerable degree of importance in the deceased.

BARROW 5

NGR: SX 0453 8552 SMR: SX 08NW, 8

Summary

'A slate knoll having the form of a small long barrow, 180 x 90 x 12 ft (54.8 x 27.4 x 3.7m) possibly trimmed by man, who certainly built a low wall around its brow, perhaps to retain a false top of earth and stones. Within the wall an intrusive habitation had been established in the Middle Ages, and this obliterated any central deposit. But on the N side, still within the crest wall, I found the little one-handed biconical mug which Miss Patchett illustrates . . .'

(Patchett, 1946, Fig. 6, B19).

1941 Excavations

Of all the Treligga sites, this is the most difficult to reconstruct and interpret, due not only to the later disturbance, but also to the inadequacy of the record. Described as 'long-barrow shaped', the mound appears to have been excavated during March and April 1941, initially by means of an E-W trench, c. 4 ft (1.2 m) wide and a rectangular (or square) cutting further south. Subsequent notes suggest that these cuttings were expanded to clear the area within the later walling round the crown of the mound.

The site was largely dug by the foreman, Medland, and Croft Andrew himself does not appear to have bothered too much with recording any but the most important

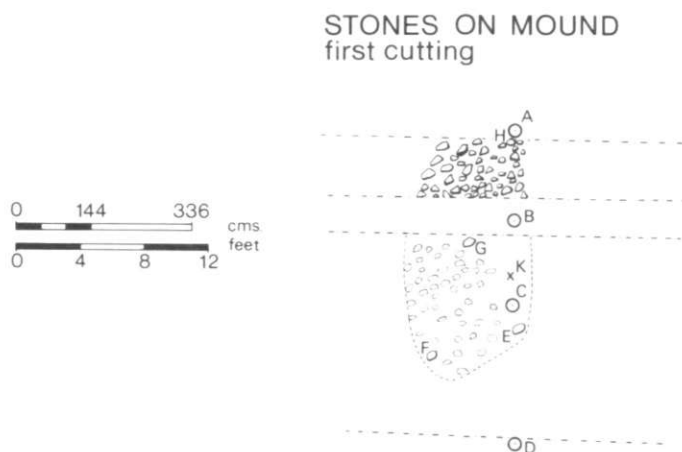


Fig. 52
Treligga 5: sketch plan of stones on mound.

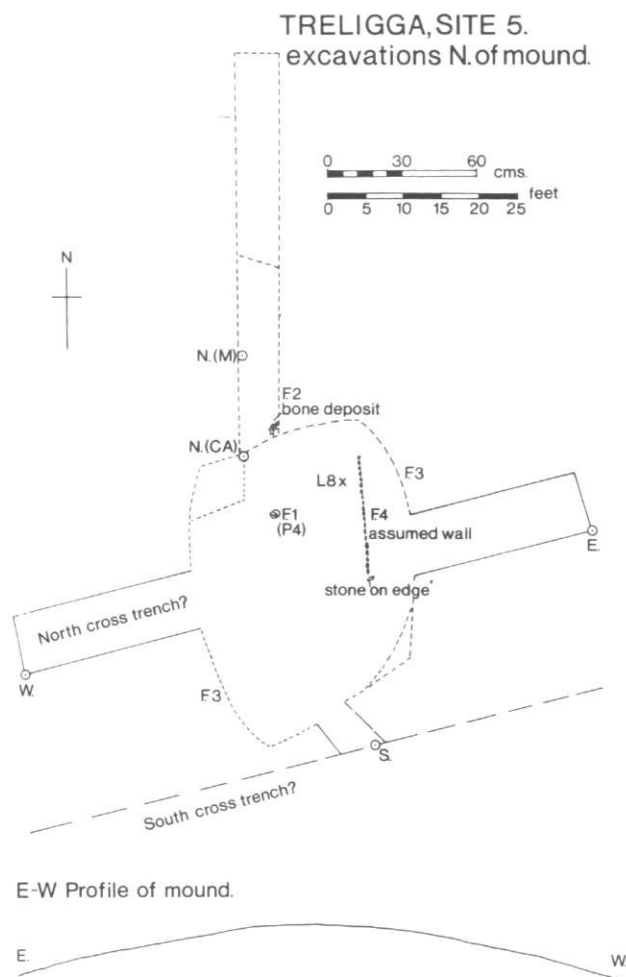


Fig. 53

Treligga 5: plan: assumed extent of excavations and E-W profile.

finds. No plans or sections were drawn out and no photographs, except those of the pot, can be identified. The notes are muddled, and no satisfactory reconstruction of the site can be made from them. On 5 March 1941, Medland is recorded as uncovering an 'oblong stony mass' on the crown of barrow 5. A measured sketch (Fig. 52) dated 7 March shows the 'stony mass' in the N trench and certain key stones measured in, as was the limit of the stone pile. Turf levels at given points show this part of the mound to be flat-topped. Fig. 53 attempts to show the extent of excavation as recorded in a sketch plan with some measurements, made on 16 April, and this appears to have been only a portion of the mound described as 180 ft (54.8 m) long N-S. The measurements for the position of the pot (P7), the bone deposit F2 and the ?spindle whorl (L9) are carefully recorded, but the positions of the pegs from which these and other measurements were taken are far from clear. Nor is it clear how Fig. 52 related to Fig. 53, though it is presumed that they are of the same part, namely the north part, of the 180 ft mound.

Measurements exist for turf levels from north to south across the mound, but since the N peg only can be identified (the S peg is not measured in the notes) it is not possible to show the line of the profile. The E–W profile is shown on Fig. 53 and shows a rise of just over 5 ft. (1.52 m). The mound is, however, described as 12 ft (3.7 m) high and the pot in F1 was recorded as 12 ft 4 in. (3.8 m) below assumed turf. Since no section measurements exist, this cannot be substantiated.

Features

F 1 — Pit with Pot (P7). The pot was found lying on its side, with the upper part crushed in, under a slate measuring 21 in x 14 in. (0.53 x 0.36 m). (Residue analysis has been carried out on pot and contents and is reported in Treligga: Appendix B). This slate, and another 1 ft (0.3 m) to the S, 'showed red char marks'. The pot lay in a pit for which detailed measurements (from points unknown) are given: its depth of 21 in. (0.53 m) is not in doubt, and it may have measured 1 ft 6 in. x 8 in. (0.46 x 0.2 m) across. The pit is described as 'tightly packed with slate fragments all round' the pot, but in the published paper (Croft Andrew, 1945) the pit is described as 'filled with earthy matter, charcoal, bone splinters etc, presumably collected from the pyre'.

F 2 — Bone Deposit. This appears to have been in a rock-cut pit c. 1 ft (0.3 m) deep (max) and 1 ft 8 in. (0.5 m) wide, just north of the later enclosing wall. A sample has survived, and on analysis proved to contain small fragments of cremated, probably human, bone. There are two probable cranial fragments and some long bone fragments, with a total weight of only 3 gm.

F 3 — Later Walling — Enclosure. The oval plan on the excavated area in Fig. 53 suggests that it may coincide with the low wall surrounding the crest of the mound. It is unlikely that excavation trenches would have been made that shape deliberately. No mention is made of the type or extent of this walling, except that it was 'low' and may have retained a 'false top of earth and stones' which must have been considerable since the pot in F1 is described as over 12 ft (3.7 m) down.

F 4 — Later Walling — Building. A length of straight wall running N–S on the east of the excavated area in Fig. 53 may be part of the 'medieval dwelling' mentioned by the excavator in his 1945 paper (Croft Andrew, 1945, 44). The southernmost end stone of this assumed wall is recorded as lying on edge leaning out, but otherwise no mention is made in the notes of this or any other buildings on the site, although rim sherds of a medieval (Stuffle-type ware) cooking pot and a sixteenth century jug were found on the 'crown of the mound'. (These, together with the sherd from Treligga 7, will be included in Cathy O'Mahoney's report on the medieval and post-medieval pottery from Davidstow Moor).

The Small Finds by Frances Healy

Pottery (Fig. 54, Table 4)

The pierced lug and cord-impressed decoration of P7 place it early in the Trevisker series (ApSimon and Greenfield, 1972, 359).

Lithic material (Fig. 55, Table 5)

L9, from 9 ft 6 in. (2.9 m) east of P7, is smaller than the holed stones found in several Bronze Age round barrows, although comparable in material and technique. Its size is compatible with use as a spindle whorl. There are also a heavily patinated

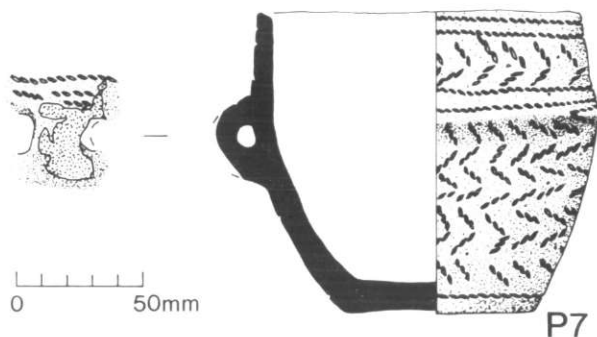


Fig. 54
Treligga 5: handled vessel from pit (1/3).

blade and a flint 'pot-boiler', both unstratified.

Discussion

As a result of the lack of data, little can be added to the excavator's original description of the site, summarized above. No clue as to the shape, size or type of construction of the original barrow exists, if indeed there was a barrow mound. The pot is of interest, however, and was considered by Croft Andrew to have been ancillary to a funeral deposit 'obliterated by the Middle Ages dwelling'. However, if 12 ft (3.7 m) of deposit overlay the Bronze Age surface, not much need have been obliterated. The small holed stone could be a spindle whorl, and, if it was broadly associated at the same level with the pot, would make it an unusually early example of such an artefact, and raises the problem of the function of other holed stones in Bronze Age contexts, both large and small.

THE TRELIGGA GROUP: General Discussion

The Treligga barrow group is one of several on the North Cornish coast, such as Cataclews (described below) and the Barrowfields at Newquay, which are aligned

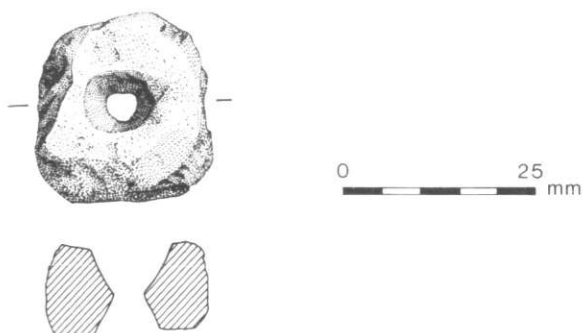


Fig. 55
Treligga 5: holed stone (L7) (1/1).

parallel to the sea cliffs and remarkably near the edge, even allowing for erosion since the Bronze Age. As with other cemeteries where more than one barrow has been examined, the manner of construction varied considerably, and include the following:

1. Ditched or unditched barrows (Site 7 ditched, Sites 1 and 2 unditched). The nature of the subsoil cannot have been a factor in determining whether or not to dig a ditch.
2. Kerbs, often mainly of white quartz, were presumably deliberately selected for visibility (Sites 1 and 2). A barrow at Treliske (Dudley, 1960) may have had a wall of quartz stones.
3. Slate cairns: Site 2, and to a lesser extent Site 1, had a cairn of large inclined slates, in marked contrast to the yellow clay mound material no doubt derived mostly from the ditch of Site 7.

The slate cairn or earth mound would reflect the practicality of obtaining some sort of covering to put over the burial/ritual area enclosed by ditch or kerb. But the initial decision on whether to dig a ditch (thereby providing one type of mound material) or not (thereby relying on the cutting of rock slabs for the covering) may reflect a cultural tradition.

The precise function of each barrow, although connected with mortuary ritual, seems also to have differed. These variations may not, however, necessarily imply any great chronological range, though it seems likely that the cemetery developed northward from Site 7 — probably always the largest and most prominent in the groups. The ?Food Vessel in the cist, which may not have been the primary deposit, would make this site early in the sequence. Site 2 with its early Trevisker pot would have followed, together with the adjacent Site 1 with its numerous (mainly female?) cremations. Site 5, set further back from the cliff edge, and containing what appears to be an early pot, may represent a ritual deposit on a rock knoll rather than a barrow *sensu stricto*, and could predate or be broadly contemporary with the first barrow in the group.

The barrow group must surely have been the cemetery for the local community living nearby. Where this was situated is not known, as with most early Bronze Age settlements. It could have been in one of the valleys leading to the sea at Trebarwith, or (and the writer inclines toward this possibility) it could have been in or near the present hamlet of Treligga — a pleasant, well-watered spot, sheltered from the E, with an excellent view of the barrows on the skyline, to the NW.

TRELIGGA: APPENDIX A

Report on the Human Cremated Bone from Treligga by Sheelagh Stead

Summary

It was possible to assign a possible sex to two of the Treligga burials, female to number 2a under the NE kerb, Barrow 1 (Cremation 1), and male to burial 1, Barrow 2 (Cremation 7). With the exception of burial 4, Barrow 1 (Cremation 4), there is no evidence for an age greater than 25 years. Apart from positive evidence for young adults in Cremation 1, Barrow 1, and in Cremation 5, also Barrow 1, the absence of any dental disease and of osteoarthritis, especially osteophytes of the vertebra, indicates death in young adulthood. The size of the cremated samples varied from 3 gm to 1395 gm.

Cremation 1. Barrow 1, burial 2A under the NE kerb

There were two collections of calcined bone with identical labelling, to be known as collections A and B. A contained the larger quantity of bone, but both present an identical appearance in terms of colour and size of fragments. Joins between fragments from both collections were sufficient to amalgamate them. Joins were found along the left supraorbital margin, the right mandible and also a radius shaft. Skull, vertebral, carpal, humerus, ulna, femur and tibia fragments were found among both collections. Both femur heads, however, were found in collection A and both patellas in B. The right mandibular condyle was found in A and the left in B.

This large cremation represents one individual, a young adult and possibly female.

The age is probably between 17 and 25 years. The dentition shows full eruption of the third molars and the presence of three quarters of the alveolar region shows no ante mortem loss of teeth and no abscesses. The teeth themselves have no caries. The surviving occlusal surfaces show very little sign of attrition due to age. The sutures on the skull have sharp contours and some must have been open. There is no evidence of osteoarthritis on the vertebra or elsewhere.

The assigning of a possible female sex is deduced from the skull where there are sharp upper orbital limits and no supraorbital ridges.

The bone fragments were mixed with soil and a considerable quantity of reddish slate and quartz. There were also a few charcoal pieces. A bronze awl was found among these remains. There was no identifiable animal bone nor any unburnt bone. The bone shows little distortion as a result of the cremation process. There is some horizontal fissuring of the cranial bone.

The size of the fragments was large enough and the quantity and preservation of these fragments sufficient to enable a very comprehensive identification to be made. All parts of the body are represented and a great deal of the body is included in the burial.

Bone fragments identified

Skull

All the tooth sockets of the mandible are present and also those for the right maxilla. There are 14 identifiable tooth fragments:— 5 molar, 5 premolar, 2 canine (probably upper), 2 incisor. One lower molar (third), and one other lower molar and one premolar have crowns. Their occlusal surfaces though distorted and partially broken in the cremation process give the evidence of age mentioned earlier.

Vault and vault with serrated edges, frontal, upper orbital, petrous and squamous temporal, mastoid, sphenoid, basi-occipital, zygomatic arch, malar, maxilla and mandible alveolar, coronoid and condyle of the mandible, occipital.

Rest of skeleton

Vertebrae (cervical, thoracic and lumbar), ribs, clavicles, scapula, humerus, radius, ulna, carpal, phalanges, pelvis, femur, tibia, fibula, tarsal, meta-tarsal. The only parts not identified were metacarpals and sacrum.

Left and right identifications were possible with the following bones: ?mandibular condyles, malar, supraorbital limits, ulna (olecranon), radius (proximal extremity), humerus (distal and proximal extremity), lunate carpals, femur (both distal and proximal extremities).

Size of fragments

Two joining lengths of the right ulna gave a length of 115 mm and two joining

lengths of the right radius one of 130 mm. The largest skull fragment was 60 x 65 mm. An average identifiable fragment was about 35 mm in length.

Weights

skull including teeth	250
scapula and clavicle	28
humerus	25
radius and ulna	31
ribs and vertebrae	90
pelvis	53
femur	66
patella	9
tibia and fibula	17
digits etc	26
unidentifiable long bone shafts	326
small unidentifiable fragments	474
Total weight	1,395 gm

Cremation 2. Barrow 1, burial 2

This small group of calcined bones represents the remains of one individual. The age is probably adult but it is not possible to diagnose the sex. There are no teeth but the size and appearance of the bones indicate an adult. The size and colour of the bone fragments are very similar to those found in Burial 2a under the NE kerb but this cannot be proved.

Bone fragments identified

Left petrous tympanic and vault from the skull. Thoracic vertebra and femur shaft. (From this evidence it appears that the whole body has been burnt but that only a very small amount has been included in the burial).

Weight

skull	3
long bone	36
remainder	14
Total weight	53 gm

Cremation 3. Barrow 1, burial 3

This cremation represents one individual, an adult. There is no evidence for sexing.

Bone fragments identified

Skull

Teeth:— one broken root, single and large; either a canine or an upper 1st incisor. Serrated vault, left mandible, left springing of the zygomatic arch, temporal.

Rest of skeleton

Ulna, humerus, vertebra, femur.

Colour

Mid-brown.

Size

Skull, largest 26 x 20 mm average c. 10 x 10 mm. Long bone, longest, 38 mm average 10 mm.

Weight

skull	14
long bone	29
remainder	50
Total weight	93 gm

Cremation 4. Barrow 1, burial 4 S(3)

This cremation represents one individual, an adult but not particularly young. There is no evidence for sex.

The edges of the fragments are rounded with post mortem wear and are whitish in colour. Most parts of the body are represented except for the feet.

Bone fragments identified

Skull

The alveolar of the right mandible with the sockets for 4 3 2 1, showing that the first premolar has been lost *ante mortem*. This is the evidence for supposing the individual to be somewhat older than, say, the 17–25 age group. There are 5 tooth fragments including one molar root, one premolar root and one crown, possibly premolar.

Left maxilla, (at canine), right upper orbital limit at articulation with malar, frontal, left and right petrous tympanic, left zygomatic arch and occipital.

Rest of skeleton

Radius and ulna, ribs and vertebra, middle phalange, pelvis, femur and tibia.

Size of fragments

Skull, largest is 32 mm and average 10 mm. Long bone, longest is 66 mm and average 20 mm.

Weight

skull and teeth	68
other identifiable fragments	93
unidentifiable fragments	162
Total weight	323 gm

Cremation 5. Barrow 1, F1, ?burial 1

This cremation represents one individual, a young adult or possibly a near adult. All the cranial plate is thin. This tallies with the youth of the individual and also raises the possibility of a female.

Bone fragments identified

Skull

Roots from one lower molar (1st or 2nd), two other molars, two premolars. Crowns from molars. Their occlusal surfaces are puckered and broken in the cremation process but there is no evidence of attrition due to age.

Serrated vault, right petrous tympanic, frontal at crest, mandible alveolar comprising two half sockets at premolar/1st molar level.

Rest of skeleton

Probable clavicle, scapula, distal and middle phalanges of the hand, meta-carpal, two joining humerus fragments, vertebra including the dens of the axis, femur and tibia.

Most parts of the body are represented and so probably all the body has been burnt.

Colour

A uniform mid-brown.

Size

Skull, largest 20 x 12 mm. Long bone, longest, 46 mm, average c. 18 mm.

Weight

skull and teeth	47
digits	3
vertebra	3
other identifiable fragments	8
long bone	72
unidentifiable (larger)	75
unidentifiable (small)	85
Total weight	293 gm

Cremation 6A. Barrow 2, burial 1, from cist (F1)

This cremation represents one individual, an adult. There is no evidence for sex. Some long-bone shafts have earth-coloured and pimply accretions on their interior and exterior surfaces. This probably implies fusion of earth or ash while the bone was hot.

Bone fragments identified

Skull

One 1st or 2nd molar root with half the crown intact. The puckering of the occlusal surface makes the ante mortem attrition difficult to decipher. If this is a 1st molar then the age group would be 17 to 25, but if a 2nd molar the age would be extended to the 25 to 35 group. There is also another molar root.

Right petrous tympanic, left molar, left mandibular condyle, sphenoid, and serrated vault.

Rest of skeleton

Scapula, vertebra (thoracic with no osteoarthritis), radius shaft, probable femur and digit shaft fragments.

Size

Skull, largest is 28 x 33 mm, average 15 x 8 mm. Long bone, longest is 70 mm, average c. 15 mm.

Weight

skull	21
identifiable fragments	78
unidentifiable fragments	24
Total weight	123 gm

Cremation 6B. Barrow 2, from cist (F1)

The sample taken from the cist sides comprises a small quantity of cremated bone among a much larger quantity of charcoal.

Bone fragments identified

Skull

Left petrous tympanic (large) and a vault fragment.

Rest of skeleton

One probable femur and other unidentifiable long bone fragments.

Colour

White with encrustations of ash or earth.

Size

Skull, largest is 27 x 8 mm. Long bone, longest is 42 mm.

Weight

Total weight	9 gm
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Cremation 7. Barrow 2, burial 3(?)

The label has the note 'sieavings from central ossuary'. Is this the same feature as the primary burial (Cremation 6)? The colouring of the two collections of calcined bone is very different and so contradicts this theory. The primary burial (Cremation 6) is brownish white with brown accretions, while this burial (Cremation 7) was surrounded by dark ashy soil and is grey white. (This may be due to the material coming from different parts of the cist — PMC).

This cremation represents one individual, adult or near adult. The sex is possibly male.

Bone fragments identified

Skull

There are no teeth. Alveolar of the mandible with half sockets in the canine/pre-molar area. Several petrous temporal fragments, one with a well defined ridge where the zygomatic process extends well beyond the external auditory meatus. This is the evidence for assigning a possible male sex.

Other cranial fragments.

Rest of skeleton

Unidentifiable long-bone fragments, including probable humerus, femur and tibia.

Size

Skull, largest is 21 x 25 mm, average is 10 x 12 mm. Long bone, longest is 33 mm, average is 20 mm.

Weight

skull	15
long bones	26
unidentifiable small fragments	47
Total weight	88 gm

TRELIGGA: APPENDIX B

Report on pot residues from Treligga Barrow 7 and Barrow 5

by John Evans (North-East London Polytechnic)

The following samples were submitted for analysis:

1. Contents of pot P7 from Treligga 5
2. Pot fragments of pot P7 from Treligga 5
3. Scrapings from base of pot P4 from Treligga 7 cist.

All samples were sieved (to remove stones, bone fragments etc). Sample 1 was sub-divided into 'soil' and pot fragments. This latter material was crushed prior to examination. The finest material was then subjected to the extraction procedure and any residues obtained were examined by infrared spectroscopy and appropriate chromatographic techniques such as thin-layer chromatography (TLC), gas chromatography (GC), and high performance liquid chromatography (HPLC).

Sample 1 contained traces of the degenerate fats system adipocere, and traces of wood resin. No other organic substances were detected.

Samples 2 and 3 also contained traces of adipocere. However, sample 2 (P7 from Treligga 5) gave additionally traces of wax, most probably beeswax, and a sugar system. Possibly this pot might have contained mead.

Sample 3 gave positive sugar tests, but the levels were too low for identification. No wax was detected. If the cist contained an inhumation, the presence of adipocere is not unexpected. Equally, food deposits including vegetable oils could have caused it to occur.

No identifiable biological debris was seen in any of the samples, nor was there any evidence of fish or other marine products.

It has been suggested that porous pottery may have been sealed by treatment with a fatty system such as milk. It is just possible that beeswax could have been used in a similar manner, but its viscosity would make it difficult to apply and the surface of the pot would be expected to have a waxy appearance. Since much of the surface was missing, little can be deduced from it.

Details of experimental procedures for extraction and examination of residues can be obtained from the writer at the Department of Chemistry, North-East London Polytechnic, Romford Road, London.

CATACLEWS

NGR: 8694 7605 SMR: SW 87NE, 25

BARROW 1

Summary

A low, double-kerbed mound covered a fire and a stone cist containing cremated bone. Sherds of several Bronze Age pots, which had been scattered over the central cairn, were recovered from the mound.

Introduction

The site on Cataclews cliff near Harlyn, described by Croft Andrews as Barrow 1, is the most westerly of a group of 6 barrows strung out along the cliff edge between Cataclews Point and Mother Ivey's Bay, above the Cornwall County Council quarry at the cliff face. The reason for the wartime excavation, undertaken in March 1944, is not recorded, but encroachment by the quarry would seem to be the most likely,

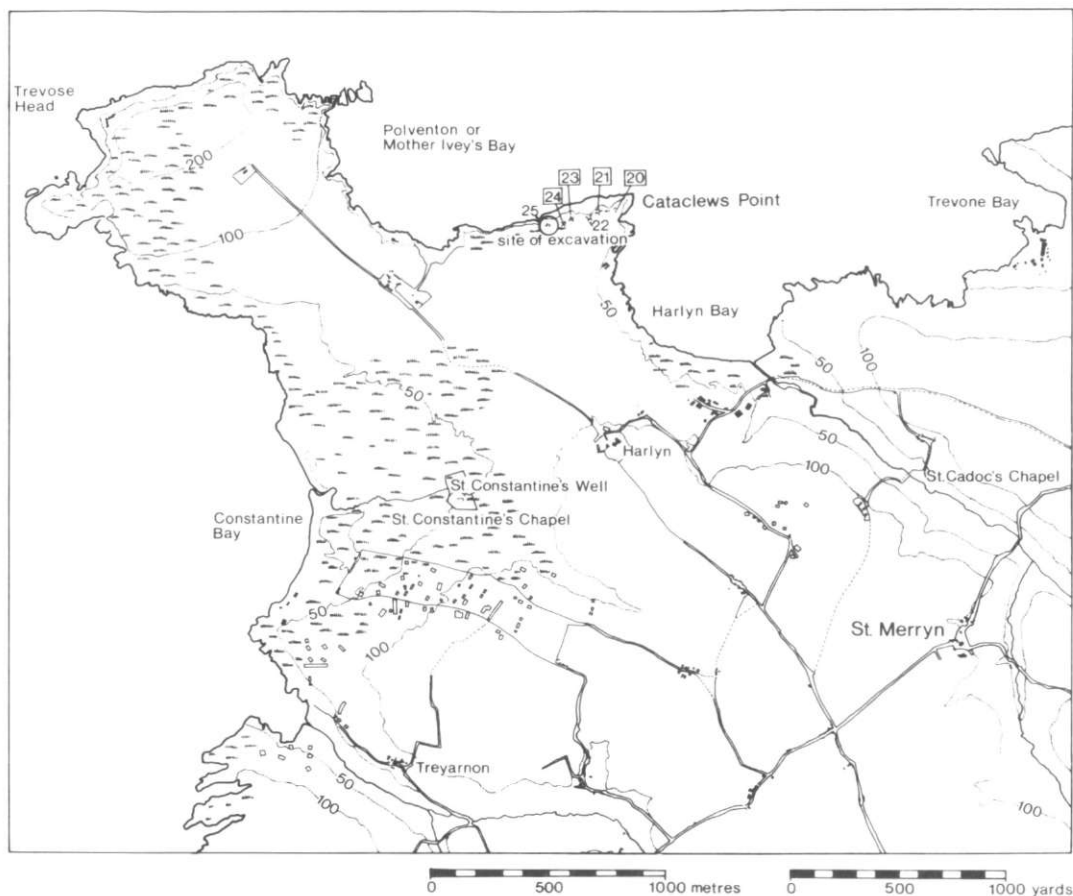


Fig. 56
Cataclews: location map.

especially since the NE side of the barrow had been deturfed (?by the quarrymen) before excavation began. The 'Cataclews stone' quarried here is a dark green/black epidiorite used in building, especially monumental work. On weathering, the stone will break down into dark brown shingle, and is almost indistinguishable from pot.

The barrow group lies on land owned by the Hellyar family, who have farmed much of the area for many years. CKCA surveyed the immediate environs of his site both during and after the excavations, but the surviving tracing from the OS map shows the position of only 5 sites: SMR 21, 22, 23, 24 and 25 (Fig. 56). The easternmost barrow, SMR 20, is not shown, presumably because it was already covered by the Admiralty look-out, the concrete base of which is still there today (summer 1984). On this map were marked in CKCA's own hand those barrows which had previously been examined: SMR 21 by Dr Penrose Williams in 1912 and SMR 24 or 23 by John Hellyar in 1910 (*note*: In 1954 L. Hellyar is reported as saying that it was the barrow now listed as SMR 23 which was dug, by a Mr. Pocock, and that quarrymen dug into SMR 24 during the war without finding anything). The finds from the previous excavations, which consist of a stone battle-axe, a food vessel and a collared urn, have been published (Crawford, 1921, 291-3) and are in

Truro Museum, as are the fine pots from nearby barrows above Harlyn Bay (Patchett, 1944, Fig. 6, Table II).

1944 Excavations

Work was begun on 27 March 1944, and radial measurements for a detailed contour survey of the barrow were taken. These have not been drawn up, since cross-sections of the mound exist and little of interest would be gained thereby. The site was totally stripped by the quadrant method. Excavation records survive in a notebook which also contained details of work at Trevelgue (1939) and the Carnanton Cemetery near St. Mawgan. A few good photographs also exist, but no drawings apart from the sketch map of the area already mentioned.

Before excavation the mound measured 30 ft (9.1 m) in diameter and little more than 2 ft (0.6 m) high, but 'looked large through being sited on a natural knoll'. Sections and plan have been drawn out from measurements in the notebook and the following information has been obtained.

CATACLEWS BARROW

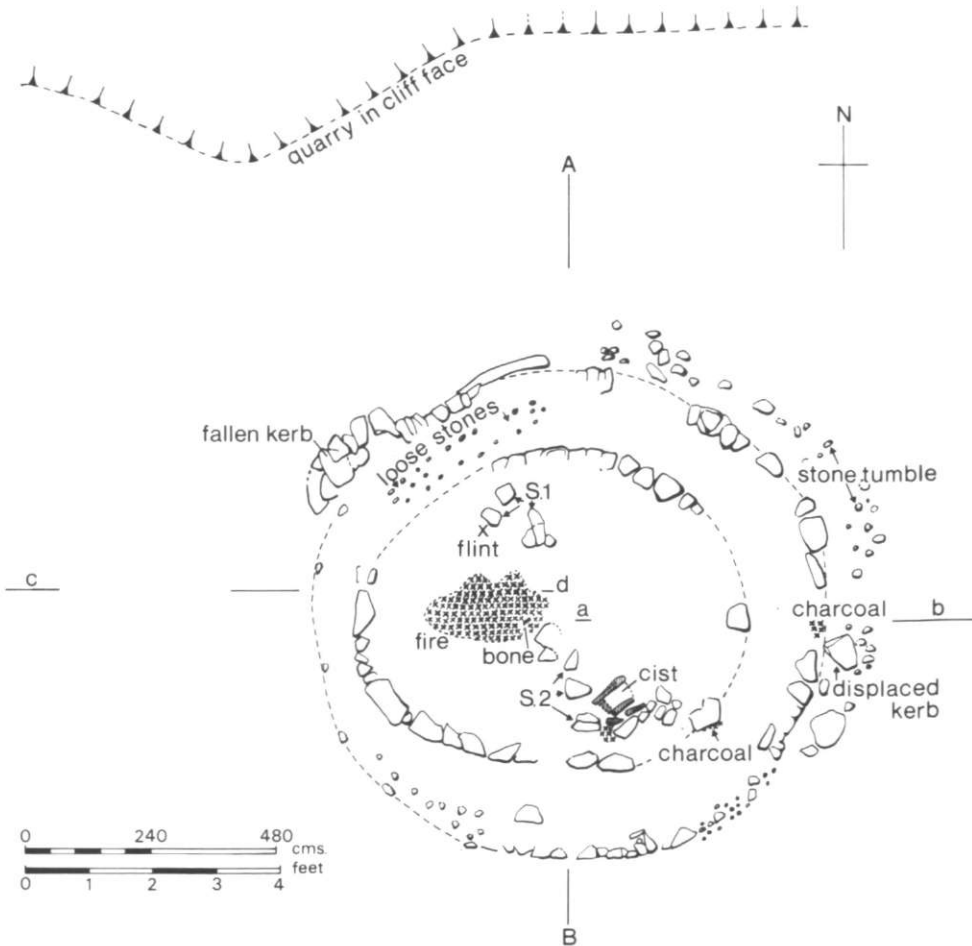
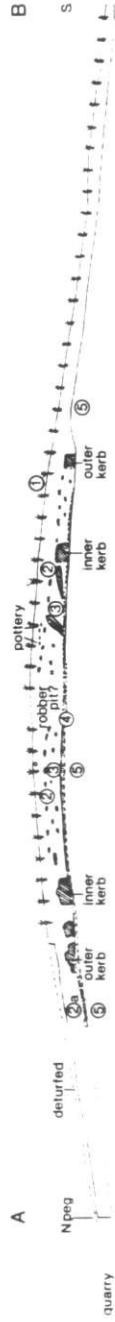


Fig. 57
Cataclews: plan.

CATACLEWS BARROW

SECTION A B.



SECTION c d AND a b.

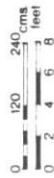
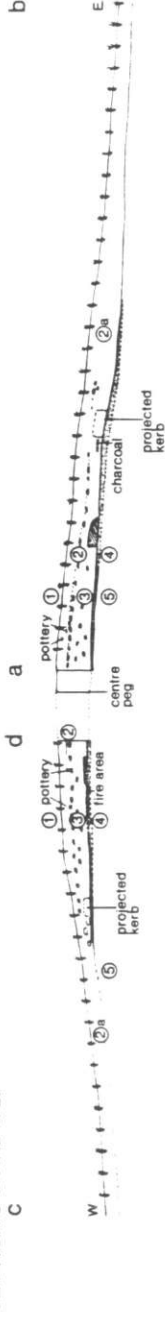


Fig. 58
 Cataclews: sections: (1) turf (2) yellow sandy soil on mound (2a) yellow soil beyond mound (3) stones and earth (4) yellow/red soil (?truncated OLS) (5) stony bedrock.



Fig. 59
Cataclews: general view of site from north-east.

Barrow Construction

A central area was defined by two kerbs of large stones laid flat. The outer kerb, which appears to have been left exposed to view by the builders, was an approximately true circle, 30 ft (9.1 m) in diameter. The inner kerb was an ellipse 20 ft 3 in. (6.2 m) N—S and 24 ft 4 in. (7.4 m) E—W which, on the western side, touched the back of the outer kerb. It is assumed that the kerb(s) were continuous since the site was stripped and no mention is made of an entrance. Although described as consisting of stones laid flat, the photographs show a number of stones set on edge.

The outer kerb had fallen outward in places, particularly on the NW side, while a 'stoney periphery' outside the kerb on the NE is shown on Fig. 57. 'A belt of loose stones' was recorded shown in the NW quadrant and it is possible that this existed elsewhere between the two kerbs, but measurements are not given. Three large white quartz pebbles were found in the kerb(s) and charcoal was noted in the E section.

Over the kerbs and central area was raised a low cairn (Fig. 58, layer 3) of smallish stones and earth; on this was an outer covering of yellow sandy soil (layer 2) over which 'a few inches of vegetable loam had developed'. The section drawings show the stony mound material (layer 3) ending at the outer kerb ring, and it is presumably this which led the excavator to state that the outer ring was 'exposed to view' since this fact is not otherwise explained. Nor is it clear whether the yellow layer (2) is part of the original mound material, though the occurrence of pot in and on it would make this likely; (2a) would then be the subsequent weathering downhill of this capping, especially on the E and N. The pottery was described as 'lying as sherds already broken, in the yellowish barrow substance and above the stone cairn'. Most of the sherds appear to have occurred in the same vicinity, near the centre of the mound.

No organic layer representing a buried land surface was noted beneath the barrow mound: only 1–2 ins. (25–51 mm) of reddish soil (layer 4) remained over the stony surface of the bedrock (layer 5) and the excavator suggests that this was not only stripped of vegetation but that the builders actually dug into the natural rock in places (see S section, outer kerb), Fig. 58).

At some time after the barrow was built a robber pit described as ‘small and ineffectual’ had been sunk through the centre of the mound, reaching down to the fire level on the floor. The extent of this pit is not otherwise recorded, but the excavator does not appear to have thought any central deposit was destroyed by it.

Features within the Enclosure

Fire: immediately west of the mound’s centre the floor under the barrow had been charred over an area 4 ft x 7 ft 6 in. (1.2 m x 2.3 m) and on this lay a mass of charcoal with a few fragments of bone. A few flints and pebbles were also found. The excavator noted that the fire ‘burnt on a rough stony surface which again suggests that either the burden (bedrock) outcropped, or that turf there had been stripped’. Since the charring only reached a maximum depth of 2 in. (51 mm) and was usually much less, he also concluded that it was not a fierce fire. Charcoal was saved from this fire, and has been submitted for radiocarbon analysis.



Fig. 60
Cataclews: excavated cist.

Cist (Fig. 60): a small cist built of Cataclews stone and measuring internally 19 in. x 12 in. (0.48 x 0.3 m) was uncovered in the SE quadrant. The cover slab of Cataclews stone had rotted away completely into dark shingle, above which was the yellow mound material. Below the shingle, and filling the cist, was the bone and charcoal of the cremation burial (Cataclews: Appendix A). The actual bone deposit was 3 in. (76 mm) deep. On the SE side of the cist were two thin, flat stones set on edge, described as 'screen stones'.

Stones in situ: in addition to the cist and stones associated with it, some further stones on the floor of the barrow to the NW and S of the centre were measured, and these are shown on the plan as s1 and s2. They are described as 'random stones' and do not appear to have been lifted, or to have any known significance.

The Small Finds by Frances Healy

Pottery (Fig. 61, Table 4)

Four or five pots are represented by the 122 sherds found strewn over the central area of the cairn. The two larger sherds of P8 are in a bag marked 'SW quadrant April 44'. Only P9 is represented by more than a few sherds. The absence of decorated sherds and shoulder fragments from a total of nearly a hundred strongly suggests that the pot was indeed plain and unshouldered. The form and the cord-impressed decoration of P8 and P11 would attribute them to styles 1 or 2 of the Trevisker series. P10, a plain shoulder sherd, may be related to P8 by its similar, if not identical, fabric. The everted, cord-impressed rim of P12 might be matched in the Trevisker or food vessel traditions.

Lithic material (Fig. 62, Tables 2 and 5)

Except for one chert core (L10), all the material listed in Table 2 is of flint. Two flint flakes marked 'Cataclews 5 barrow field' and two flint blades marked 'Polventon Field' are excluded from the table. Their presence in the collection casts doubt on the provenance of the unstratified material, some of which may also have been collected from the immediate area rather than excavated from the barrow. Where cortex survives it shows that the raw material consisted of beach pebbles. These seem to have been larger, or to have been worked-down less intensively, than those knapped at Nancekuke since the material is generally larger: complete flakes and blades range from 14 to 48 mm in length and cores have a mean weight of 75.5 gm. One core (L12) has blade scars. Two other (L10 and L11) have been prepared for use by the removal of one end of the pebble to provide a platform, as at Poldowrian, St. Keverne (Smith, 1982, 39). Much of the flint is heavily patinated. None of the plates from the fire area, including two marked 'fire' in Croft Andrew's hand, shows any sign of burning.

The frequency of patination and the absence of any sign of burning from pieces supposedly found in the fire suggests that most, if not all, of the material was residual. This is all the more likely because Cataclews Point, on which the barrows stand, is the site of an extensive Mesolithic flint scatter (Johnson and David, Fig. 14). The relatively large size of the material may reflect the presence of a readily-accessible flint source in a raised beach exposed in the cliffs (Crawford, 1921, 294). Alternatively, if the bulk of the collection is indeed Mesolithic, it may reflect the availability of larger and better-quality flint in subsequently submerged deposits (*cf* Johnson and David, 1982, 83).

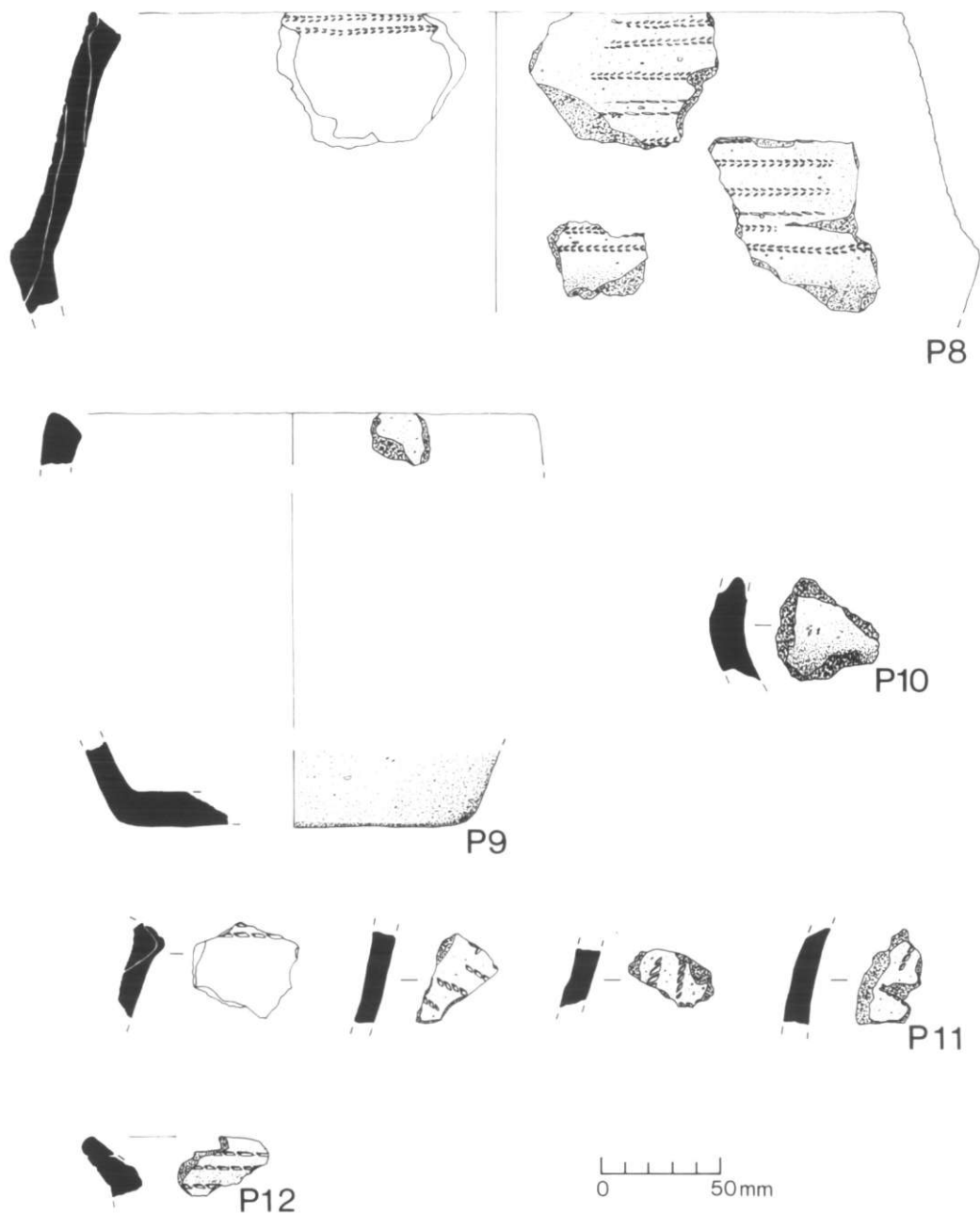


Fig. 61
Cataclews: sherds scattered over the central area of the mound (1/3).

In addition to the three white pebbles from the kerb, noted above, a number of assorted pebbles were also collected from the excavations. Some of the very small ones had been packed with flints, charcoal and even potsherds, with which they are assumed to be associated, and so contemporary with the barrow.

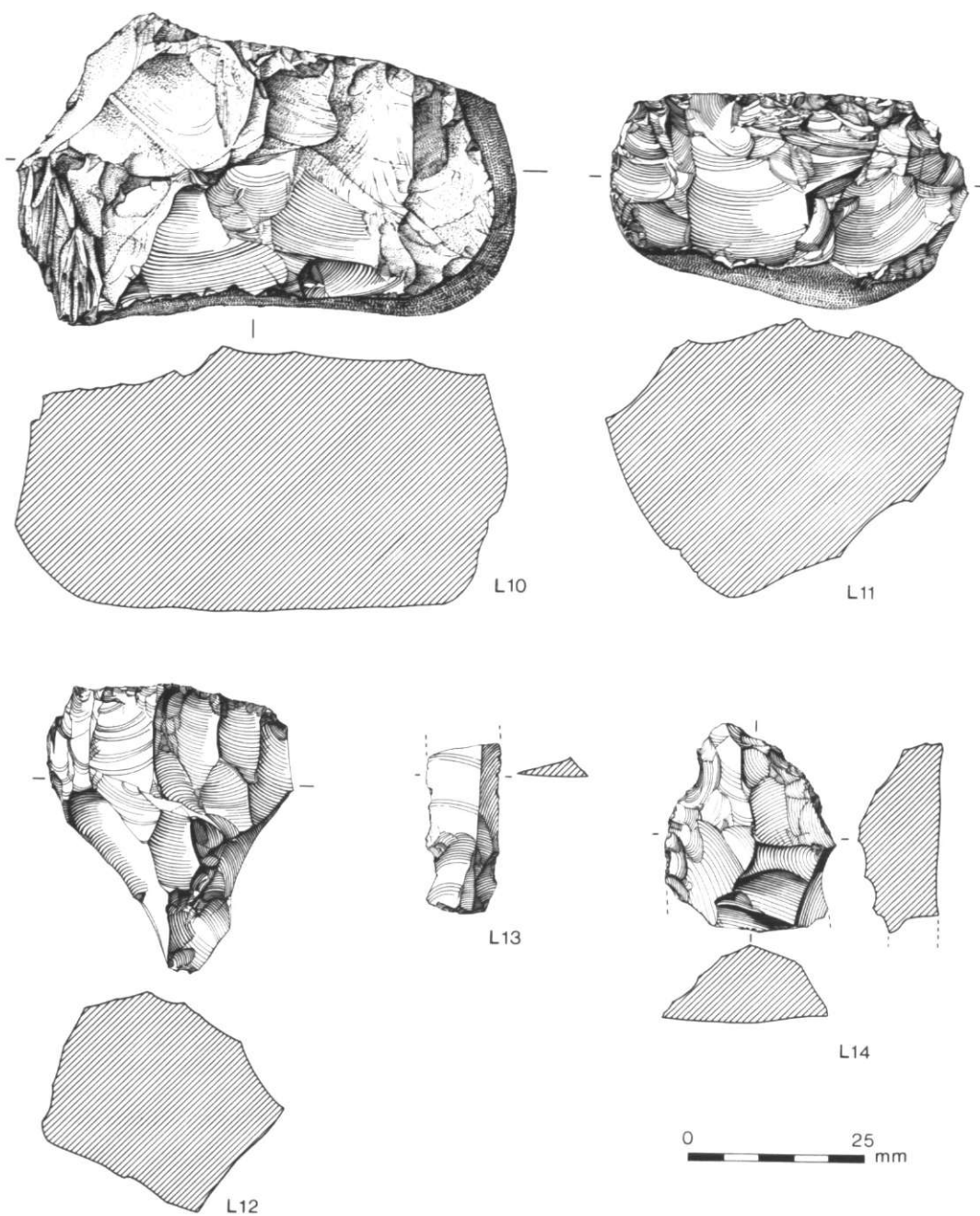


Fig. 62
Cataclews: lithic material: L10 from south-east quadrant, L11 from mound in north-west quadrant, L12—13 possibly from north-east quadrant, L14 from 'floor' in north-east quadrant (1/1).

Table 2. Worked lithic material from Cataclews

Categories	SE quad	NW quad	NE quad & ?NE quad	W baulk & fire	unstrat	totals	drawings
cores	1	1	1		1	4	L10, L11, L12
irregular waste	3					3	
split pebbles					1	1	
flakes	1	1	2	2	2	8	
blades			1	2	3	6	L13
nosed scraper or 'fabricator'			1			1	L14
totals	5	2	5	4	7	23	
drawings	L10	L11	L12, L13, L14				

Discussion

Even for a county as rich in archaeology as Cornwall, the area in which the Cataclews barrow group lies is exceptionally rich in prehistoric remains, from the Mesolithic of the Trevoze Head-Pentire Head area (Johnson, 1980) through to the Iron Age at Harlyn Bay and The Rumps. The Bronze Age barrows with their fine pots (Patchett, 1944, Table II) round Harlyn and Trevone, together with the gold lunulae found in a cist at Cataclews Point (Pearce, 1983, No. 98), testify to a flourishing early Bronze Age community in the area. The local geography must here play an important part; the Camel estuary is one of only two surviving estuaries (the Gannel river having silted up in recent times) between Lands End and Hartland Point, the other being the Hayle river.

The barrow excavated in 1944 was one of the more rewarding of those dug by CKCA both in terms of finds from the site itself, and in particularly in its relationship to the others in the group. Of the three sites examined out of a known cemetery of six, each appears to have either a different style of pot, or burial practice, or barrow construction. The urn discovered in 1912 was found inverted, in the centre of the barrow. The pottery from CKCA's excavation was deliberately broken and scattered *over* the burial area. The details of the food vessel deposit are not known, though the pot was more or less intact. Nor are details of barrow construction known from the earlier excavations, except that a sketch made by Penrose Williams in 1912 shows the urn beneath a substantial stone pile, though whether this was retted by a kerb or kerbs is not clear.

Double ring cairns are known from the county and also from Dartmoor (Grinsell, 1978, 100-1) but do not appear to be all that common. A double ring may have existed at a barrow on Trewaras Head which also had a cist on the west side (Borlase, 1872, 140). Recent excavations of a barrow with two concentric stone rings at Colliford (CR11) has produced three radiocarbon dates in the mid-2nd millennium bc (Griffith, 1984). It seems possible that at Cataclews the inner ring was the original,

pre-barrow, mortuary enclosure where the deceased was cremated; the bones then being placed in the cist. Later the enclosed area would have been mounded over and the pottery scattered upon it. There is no indication of the time lapse between these phases, but it is puzzling that only one individual should have had so many different pots scattered on her/his grave. It suggests, surely, that the pots in this instance were not directly connected with containing the ashes. The practice of scattering broken pottery in the funerary enclosure recalls Late Neolithic traditions in which the pieces are more usually found strewn on the surface on which burials and rituals took place. The spread of pot over the cairn itself is less common but suggests the mound was raised immediately the burial rites had been performed rather than that any substantial lapse of time occurred.

It is possible that cremation took place on site, despite the excavator's observation that the ground 'was not charred to a great depth' from which he assumed that it was not a fierce fire. The effects of a fierce fire on such a subsoil are not well known, and in any case subsequent leaching could have obscured the evidence. The double cairn-ring barrow at Colliford also had a layer of charcoal in the centre, deliberately deposited as part of the ?funerary proceedings (Griffith, 1984, 65). The off-centre stone cist at Cataclews, in which the cremation was interred, is similar to others known from barrows both within the county and elsewhere, while the apparently isolated cist recently excavated at Trevemedar, St. Eval (Harris, 1978, 137) had a flooring of white pebbles recalling those reported from beneath the urn in Cataclews barrow SMR 21.

The ruined barrow at Glendorgal (Dudley 1962) has certain analogies with Cataclews in its siting, its overall size, the off-centre cists with white quartz pebbles and the ring wall, which compares in shape with the inner kerb at Cataclews. It is not known whether any central deposit existed at Cataclews, owing to the digging of the robber pit at the centre, though this intrusion is dismissed by CKCA and no details are given. As suggested above for Treligga 7, the cist may have contained the primary, indeed only, burial.

Apart from Nancekuke, this barrow produced more flint than any other excavated by CKCA on the north coast. This, as observed by Frances Healy, may well be due to the large amount of residual Mesolithic in the area. The small quartz pebbles occurring in the barrow mound, however, may have had a ritual significance (Miles 1975) such as has already been suggested in connection with Lousey Barrow.

Three barrows have now been examined at Cataclews, spanning in ceramic terms the Food Vessel-Collared Urn/Trevisker 1-2 phases. It is interesting to speculate what the other three mounds may have contained, and whether this cemetery, like that on the Lousey ridge and possibly at Treligga, may have developed from a Beaker presence. A full study of the earlier Bronze Age material in the Harlyn Bay area — its barrow groups and known ceramic and metal finds — could be a useful line of future research, especially in view of the recovery, in the summer of 1985, of a small Trevisker-type urn from a cist beneath a mound on the cliff edge at Harlyn Bay (information from County Museum and SMR, Truro). Much has been done on the Iron Age and, most recently, on the Mesolithic in the area (Johnson and David, 1982). The earlier Neolithic is still poorly known, but the LN/EBA, with its rich grave goods, could prove rewarding if linked to a search for settlement sites. A study of the regional topography, especially the influence of the Camel estuary on Bronze Age communities, might contribute to our understanding of environmental, social and economic features in the second millennium bc in north Cornwall.

CATACLEWS: APPENDIX A

Report on the Human Cremated Bone from Cataclews by Sheelagh Stead

Cremation S(1) — sample 1, from cist

These cremated bones represent one individual. The age is probably adult or sub-adult, not an infant.

Bone fragments identified

Skull

Two thin vault fragments, no teeth.

Rest of skeleton

Unidentifiable long bone fragments.

Size

Long bone, longest is 26 mm.

Weight

skull	2
long bones	6
remainder	40
Total weight	48 gm

Cremation S(2) — sample 2, from top of cist

This sample shows evidence of age (sub-adult) in an unfused epiphyses fragment probably from the knee region.

Bone fragments identified

Skull

One serrated vault plus four other vault fragments. These are thin. There are no teeth.

Rest of skeleton

Unidentifiable long bones.

Size

Skull, largest is 21 x 10 mm. Long bone, longest is 39 mm.

Weight

skull	2
larger, including long bone fragments	20
remainder	11
Total weight	23 gm

Cremation S(3) — sample 3, four unlabelled bags A, B, C, D from cist

A. These cremated bones represent one individual, an adult. There is no evidence for sex.

Bone fragments identified

Skull

One tooth root, probably upper premolar. Two fragments of maxilla alveolar, one at the right anterior region. Serrated vault and sphenoid.

Rest of skeleton

Left clavicle, radius (proximal extremity) pelvis at acetabulum, scapula, femur and tibia.

Size

Skull, largest is 22 x 12 mm. Long bone, longest is 53 mm.

Weight

skull	15
long bone	40
other identifiable	7
remainder	34
Total weight	96 gm

B. These cremated bones represent one individual, probably an adult.

Bone fragments identified

Skull

There are no teeth but there is a section of mandible alveolar with the two pre-molar and 1st molar sockets on the right side. Serrated vault fragment and right squamous temporal.

Rest of skeleton

Rib, left radius shaft, vertebra.

Size

All fragments are uniformly largish. Skull, largest is 23 x 21 mm. Long bone, longest is 41 mm.

Weight

skull	17
long bone	36
other identifiable	3
remainder	15
Total weight	71 gm

C. This small quantity of cremated bone probably represents a human adult. There are no identifiable fragments, but the texture and appearance indicate a human cremation.

Weight

Total weight	11 gm
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D. These cremated bones represent one individual, an adult or sub-adult and possibly female. The evidence for age and sex comes from the same bone fragment which is the upper left orbital limit which is fine and sharp in contour.

Bone fragments identified

Skull

There are no teeth. Right coronoid of mandible. Left upper orbital limit, serrated vault fragments.

Rest of skeleton

Humerus near olecranon fossa; unidentifiable long bone.

Size

Skull, largest is 19 x 21 mm. Long bone, longest is 34 mm.

Weight

skull	8
long bone	32
other identifiable fragments	1
remainder	14
Total weight	55 gm

Summary

All the samples came from the cist, thus raising the possibility that they represent the burial of a single individual. Unfortunately all the samples are small and provide very little identifiable material. The texture and degree of burning is similar throughout the samples, but S(1) and its surrounding earth and ash differ in colour from the rest. However, this could merely mean that S(1) was taken from a different part of the same cremation fire.

There is some inconclusive evidence among the samples which could indicate the presence of two individuals of different ages. There is, however, no duplication of bone to confirm two individuals, nor joining of pairings of left and right bones to prove just one.

One piece of evidence for a sub-adult comes from S(2), an unfused epiphysis, possibly from the knee region. Supporting this is an upper left orbital limit fragment from S(3)D, which is either sub-adult, or female, or both. Also, the cranial vault fragments from all the samples are thin except S(3)B, where there are some thicker ones, and from S(3)C where there are no identifiable fragments. There is no evidence, however, of deciduous dentition. On the contrary, a substantial bifurcated tooth root from S(3)A, probably a 1st upper premolar, is fully developed, thus indicating a minimum age of about fifteen years.

CATACLEWS: APPENDIX B

Charcoal by Caroline Cartwright

Sample 1 : Charcoal (separated from calcined bone) in cist
6 gm *Quercus* sp. (oak)

Sample 2 : Charcoal from fire beneath mound
10 gm *Quercus* sp.

CONCLUSION

Pottery by Frances Healy

Table 3 lists the few radiocarbon dates which relate to Bronze Age pottery in Cornwall. Those associated with styles current throughout Britain (beaker, food vessel urn and biconical urn) conform to the chronology of those styles in other areas, summarized by Burgess (1980, 62–68, 84–97). They are bracketed by, and centred on, dates relating to the Trevisker tradition of Cornwall and adjacent parts of Devon.

The four styles distinguished by ApSimon within the Trevisker series succeeded each other in the ditch silts of the type site (ApSimon and Greenfield, 1972, 325–337), but have not always proved satisfactory when used as a chronological framework for the tradition as a whole, mainly because of the apparent persistence of 'earlier' stylistic traits alongside later ones (Johnson, 1980, 142–143). Some developmental landmarks may, however, be singled out.

Incised decoration appeared later than cord-impressed decoration and eventually replaced it in both the Trevisker and Gwithian sequences, but by no means synchronously, since the replacement seems to have occurred much earlier at Gwithian (Megaw, 1976, 58–66). A similar transition took place between phases 1 and 2 at Stannon Down, St. Breward (Mercer, 1970, 37–38). Large, sometimes handled, cord-impressed urns, like those from Crig-a-Mennis, Perranzabuloe (Christie, 1960, Fig. 4), were developed by the mid-second millennium bc and, on the evidence of associations, remained current almost to the end of the millennium (Burgess, 1980, 96). The Upton Pyne and Shaugh Moor dates are consistent with the establishment of the style by the mid-second millennium indicated by the Crig-a-Mennis date. The Shaugh Moor sequence suggests that it was in use on Dartmoor before the local introduction of biconical urns; the Upton Pyne sequence that it remained current alongside them. The appearance of biconical urns in the south-west may have followed their introduction into Wessex, tentatively dated to the sixteenth century bc (Tomalin, 1983, 257–8). Typologically later aspects of the Trevisker tradition seem to have persisted in domestic use into the first millennium bc, given the presence of Urnfield bronzes in layer 3 at Gwithian, the pottery from which is of late Trevisker type (Burgess, 1976; 1980, 213).

Early Trevisker pots often have traits in common with contemporary national Early Bronze Age pottery styles. The small size, form, and all-over decoration of P7, (Treligga 5) for example, are close to those of some food vessels. The widely-flaring body of P6, (Treligga 2) echoes food vessel, food vessel urn, or collared urn forms. The profile and decoration of Urn II from Crig-a-Mennis, Perranzabuloe (Christie, 1960, Fig. 4:2), are reminiscent of collared urn.

The regionality of the style is seen in its restricted, peninsular distribution (Tomalin, 1982, Fig. 15) and its gabbroic fabrics. The local rarity of later, notably biconical and Deverel-Rimbury, urn styles, reflects the vigour of the Trevisker tradition during their currency. Contemporaneity with them is reflected in stylistic similarities. Many Trevisker pots, like P8, (Cataclews), resemble biconical urns, and Trevisker traits are particularly noticeable among the biconical and Deverel-Rimbury urns of Wessex. Similarities of form and decoration are strongest in Dorset (ApSimon 1962, 319–320; ApSimon and Greenfield, 1972, 358; ApSimon, 1972, 142–143), but may be traced, with diminishing frequency, farther afield, not only in the south-west, but as far away as eastern England. At least one example occurs among the pottery from a site in Mildenhall Fen, Suffolk (Clark, 1936, Fig. 5:4), and others are to be found among material from similar fen edge sites in Hockwold-cum-Wilton, Norfolk (Healy, in preparation).

If pots like P8 were indeed made only after the local establishment of the biconical urn tradition, then a barrow group like that at Cataclews, different mounds in which have produced not only Trevisker urns but also a collared urn and a food vessel (Crawford, 1921, 291–293; Patchett, 1944, Table IV:D8, Table V:E12), can be seen as having been used for burial through most of the Early Bronze Age, like many barrow cemeteries to the east and north.

Table 3. Radiocarbon determinations relating to Cornish Bronze Age pottery, with approximate calibrations derived from the Clark (1975) curve

1565±90 bc (NPL-193; 1900 BC)	Charcoal contained in an early Trevisker urn found beneath a barrow at Crig-a-Mennis, Perranzabuloe (Christie, 1960, Fig. 4:1; 1976).
1539±59 bc (BM-935; 1825 BC)	Charcoal from a collared food vessel urn with applied lugs found in a chambered tomb at Tregiffian, St. Buryan (<i>Radiocarbon</i> 18, 1976, 39).
1540±90 bc (HAR-2892; 1825 BC) and 1410±70 bc (HAR-3107; 1700 BC)	Charcoal from the lowest layer of a mound containing Middle style Beaker pottery at Poldowrian, St. Keverne (Harris 1979, 19, 30).
1520±70 bc (HAR-654; 1800 BC) and 1470±80 bc (HAR-655; 1770 BC)	Twig charcoal from a pit in the bottom of a barrow ditch, sealed by primary silts and overlain by sherds of a food vessel urn, at Watch Hill, St. Stephen-in-Brannel (Miles 1975, 8-9, 14).
1386±53 bc (BM-402; 1700 BC)	Charcoal from an urn with Trevisker traits associated with a true Trevisker series urn beneath a barrow at Upton Pyne, Devon, post-dating a primary series collared urn and perhaps contemporary with a biconical urn (Pollard and Russell 1969, 1976).
1330±90 bc (HAR-2989; 1630 BC)	Charcoal from a hollow containing sherds of biconical urn within enclosure 15 on Shaugh Moor, Shaugh Prior, Devon, which was built over an old land surface incorporating sherds of a cord-impressed Trevisker pot (Wainwright and Smith, 1980, 72, 96, 115, Fig. 18:P2).
1120±105 bc (NPL-21; 1400 BC)	Charcoal from a cremation pit in layer 5 of site X at Gwithian, associated with Trevisker-like pottery (ApSimon and Greenfield, 1972, 356).
1110±95 bc (NPL-134; 1400 BC)	Charcoal from the floor of the north-west side of house A at Trevisker, St. Eval, probably dating from the end of the Bronze Age occupation there (ApSimon and Greenfield, 1972, 356).

Table 4. Catalogue of illustrated pottery

Note: colours are recorded by Munsell notations followed by subjective descriptions, not by the corresponding soil colour names. Fillers have been identified by Dr David Williams in thin section under a petrological microscope, except for P1 and P4, which were not available for sectioning. P1 was examined at x30 under a binocular microscope, P4 through a hand lens.

No.	Site	Context	Small find no(s)	Colour	Hardness	Texture	Filler(s)	Decorative technique(s)	Style	Comments
P1	Trevellas Down	?	2	ext. 5YR 5/4 buff core 5YR 4/3 brown int. 5YR 4/1 dk. grey	medium	medium, friable	grog, quartz, other rock	finger-pinch	later Neolithic/ Early Bronze Age	Boxed with (?found with) 3 other sherds + crumbs, 2 of the sherds also possibly rusticated.
P2	Lousey barrow, St Juliot	scattered with P3 around burials	1a	ext. 2.5YR 5/4 to 6/4 orange-pink core 2.5YR 3/0 dk. grey int. 5YR 5/4 to 4/1 orange-grey to dk. grey	hard	fine	grog, a little shale	comb-impression	Beaker	Total 4 sherds, 1 drawn by Professor W.F. Grimes (amended to show an abraded rim rather than a wall sherd), others shown in outline only. Listed by Patchett (1944, Table I:A7) and Clarke (1970, corpus no. 102F or 103F).
P3	Lousey barrow, St Juliot	scattered with P2 around burials	1b	ext. 5YR 5/4 buff-brown core 5YR 4/1 grey int. 5YR 4/2 buff-grey	medium	medium	grog, sandstone, mica, quartz & sericite	comb-impression, finger-nail impression	Beaker	Total 26 sherds, drawn by Professor W.F. Grimes. Shoulder diameter approx 14 cm. References as for P5.
P4	Treligga 7	cist (F1)	6	ext. 7.5YR 5/4 buff-brown dk. grey core 7.5YR 4/0 dk grey int. 7.5YR 3/0 secondarily blackened	medium	medium	grog, some stone	?applique, external smoothing	?food vessel	Now in Truro Museum; mentioned by Croft Andrew (1945, 43) and Dudley (1964, 438).

No.	Site	Context	Small find no(s)	Colour	Hardness	Texture	Filler(s)	Decorative technique(s)	Style	Comments
P5	Treligga 1 (?)	?	2	ext. 7.5YR 4/4 to 4/2 orange to orange-grey core 5YR 5/8 to 3/1 orange to dk. grey int. as core	hard	medium	gabbro		?	
P6	Treligga 2	pocket of clayey loam in NE (F4)	1, 1a	ext. 7.5YR 4/2 brown core 7.5YR 4/4 brown-red int. 7.5YR 3/2 dk. brown	soft	coarse, friable	gabbro, sandstone, chert & quartzite	cord-impression applied lug, surface very thoroughly smoothed	Trevisker	Fragmentary and in very bad condition; only 1 lug present; profile above shoulder conjectural. Incorrectly listed by Patchett (1944, Table VI:F17) as in British Museum.
P7	Treligga 5	pit (F1)	1	ext. 5YR 5/6 orange-brown to 5YR 3/3 brown core ? int. as ext.	medium	medium	gabbro, several granite frags.	single twisted cord impression	Trevisker	Upper part crushed to oval outline, so that original rim diameter may have been slightly less than illustrated. Single lug apparently perforated after application; most of its outer surface missing. Illustrated by Patchett (1944 Fig. 6:B19).
P8	Cataclews	scattered over central area of cairn	4, 5	ext. 7.5YR 4/2 grey-buff core 7.5YR 5/2 light brown int. 7.5YR 4/2 grey-buff	hard	coarse	gabbro, quartzite & sandstone	fine plaited cord and single twisted cord impression	Trevisker	Total 7 sherds. Decoration seems discontinuous. Tends to split along joins between coils. See P10.

No.	Site	Context	Small find no(s)	Colour	Hardness	Texture	Filler(s)	Decorative technique(s)	Style	Comments
P9	Cataclews	as P8	1, 2, 3, 4, 5	ext. 7.5YR 4/2 buff core 7.5YR 5/4 buff int. 7.5YR 5/2 buff-grey	soft	coarse	as P8		?	1 rim sherd, 5 base sherds, 93 body sherds; internal blackening on base and many body sherds; no definite shoulder fragments.
P10	Cataclews	as P8	1, 2, 3	as P8	as P8	as P8	as P8			May be part of the same pot as P8 if the latter's decoration is genuinely discontinuous.
P11	Cataclews	as P8	1, 2, 3	ext. 7.5YR 4/2 brown-grey core 7.5YR 4/0 grey int. 7.5YR 4/2 brown-grey	hard	medium	gabbro	single twisted cord impression	Trevisker	Total 4 sherds. Also 2 plain body sherds of very similar fabric. Outer surface of rim sherd missing.
P12	Cataclews	as P8	1, 2, 3	ext. 7.5YR 5/2 buff-grey core 7.5YR 4/0 grey int. 7.5YR 5/2 buff-grey	medium	medium	gabbro	single twisted cord impression	Trevisker or food vessel?	Such curvature as there is suggests that the decoration is external rather than internal.

Lithic Material by Frances Healy

The total of lithic material from the barrows is small and the contexts of much of it are uncertain. Most of it is beach pebble flint of presumably local origin, and much of it may have been residual, rather than related to the construction or use of the barrows. This is particularly likely at Cataclews, where barrow cemetery and Mesolithic scatter coincide, and in the case of the pebble tools from Nancekuke (L4) and Treligga 7 (L7). These, although seldom if ever found in stratified contexts, tend to occur with predominantly later Mesolithic material (Jacobi, 1979, 77, 85). Perhaps the most convincing instance of this occurred in an excavated Mesolithic and Neolithic scatter at Poldowrian, St. Keverne, where the distribution of eighty-five pebble tools was very similar to those of microliths and microburins (Smith, 1982, Fig. 5).

Objects most likely to relate to the barrows are a holed and cupped stone from Nancekuke (L5), a small holed stone from Treligga 5 (L9), a cupped pebble from Lousey Barrow (L6) and a battered, elongated flint nodule (L8) from Treligga 2. This last is distinguished from most of the material from the barrows in being of non-beach, presumably non-local, flint. While little modified, it may have been selected for its regular, elongated shape. This and its battered ends invite comparison with implements found with iron ore in some burials with late beakers and interpreted as strike-a-lights (Clarke, 1970, 448). Most are extensively worked 'fabricators', but a few are more rudimentarily retouched, like L8, presumably because their original form required little modification. They include examples from barrows at West Overton G6b, Wiltshire (Smith and Simpson, 1966, Fig. 3:6) and Acklam Wold 124, Yorkshire (Clarke, 1970, Fig. 780). There is at least the possibility that L8 was deposited with a burial.

Table 5. Catalogue of illustrated lithic material

<i>No.</i>	<i>Site</i>	<i>Context</i>	<i>Small find no.</i>	<i>Description</i>
L1	Nancekuke	Ditch near trench 2, under farm soil in top of stony debris	2	Oblique arrowhead of Clark's (1934) form E or F. Flint.
L2	Nancekuke	Ditch, NE quad	21	Piercer made on split beach pebble with negative flake scar on ventral face. Flint.
L3	Nancekuke	Farm soil over inner edge of ditch, SE quad	19	Scraper made on split beach pebble. Flint.
L4	Nancekuke	Trenches in SE quad	8	Pebble ground to a double bevel at narrower end, pecked and scored on both faces. Quartz silt-stone or fine-grained quartzite.

<i>No.</i>	<i>Site</i>	<i>Context</i>	<i>Small find no.</i>	<i>Description</i>
L5	Nancekuke	Ditch filling trench 4 N	1	Fragmentary holed and cupped stone, apparently ground or drilled. Coarse, spotted slate.
L6	Lousey Barrow St Juliot	Ditch bottom in S		Cupped pebble. Sandstone veined with quartz.
L7	Treligga 7	?	3	Pebble pecked and worn to slight bevel at narrower end, scored and flaked at broader end. Scar of recent removal of broader end not shown. Fine-grained igneous rock, perhaps basalt.
L8	Treligga 2	?	4	Elongated nodule with un-abraded brown cortex. Scars of a few blade-like removals and battering at both ends, especially the narrower, as if the nodule had been used as a punch or strike-a-light. Non-beach flint.
L9	Treligga 5	9' 6" E of pot, 11" deep	3	Stone fragment with perforation apparently ground or drilled from both faces.
L10	Cataclews	Near floor in SE quad	15	Beach pebble core; most flakes removed from one platform, a couple from another at right-angles to it. Mottled blue-grey chert, with flinty inclusions and micaeous flecks.
L11	Cataclews	High in yellow mound, NW quad	11	Single-platform core on beach pebble. Flint.
L12	Cataclews	Croft Andrew's find 1, ?NE quad	17	Patinated blade core. Flint.
L13	Cataclews	'N peg', ? NE quad	17	Patinated blade. Flint.
L14	Cataclews	measured spot on floor, NE quad	8	Fragmentary nosed scraper, or, less probably, 'fabricator'. Soapy texture, as if once heated. Flint.

General Discussion

All the barrows described in this report belong to cemeteries of five or more, with the possible exception of Penhale Barrow at Nancekuke, where lack of details regarding the area may account for its apparent isolation. Their excavation has made it possible to examine, admittedly to a very limited extent, various aspects not only of the individual sites but of a number of widely separated barrow groups, all within broadly similar geographical, geological and environmental situations, ranging from Portreath in the SW of the peninsula, to Crackington Haven in the north near the Devon border. These aspects can be distinguished as:

Siting of cemeteries

Cliff edge. Groups such as Treligga and Cataclews, which are aligned parallel, and very near, to the cliff edge, may have been sited for maximum visibility on the skyline, not only from the sea, but also from settlement(s). If so, they would be linked with groups located:

On high ground further back from the coast, on ridges between coombes running parallel to the coast. The cemetery at Trevellas Down lies on such a ridge, which is higher than the cliff edge. Nearby Crig-a-Mennis, originally one of a denuded group, is on high ground between two coombes and would have been on the skyline seen from settlements on lower ground to the north and east (Christie, 1960).

On high ground at right angles to the coast. St. Eval and Lousey barrows belong to groups which lie on ridges running inland towards the moors and other important barrow groups. Their situation would seem to have been determined by the way the interfluves run in this part of the county, where the high ground extends from the moors to the coast and is cut by rivers draining out to the sea at right angles to the coast. The siting of the barrows on high ground, though not necessarily the highest in the area, again reflects the need for visibility or accessibility from the settlements.

Only one known Bronze Age settlement can be related to any of the cemeteries under discussion, and that is Trevisker, St. Eval. Here the barrow group on the wartime aerodrome is very close to the settlement, which is not in a valley but at approximately the same altitude as the barrows. To the south-east of Trevisker Round other barrows lie on higher ground, on Bears' and Denzell Downs, and may have equal claim to association with the settlement.

The barrow groups on the north Cornish coast are normally situated above good accessible bays where boats could be beached. The communities using these bays and building the barrows would be sea-orientated, and the prominent members of the barrow groups on the skyline may have had a dual role as markers or beacons visible from the sea, as well as from the settlements. Intervisibility between barrows may also have been a significant factor (Green and Rollo-Smith, 1984, 312).

A recent analysis of barrows on Bodmin Moor (Barnatt, 1982, 84–6) shows that 79% of large mounds (?ritual/marker mounds) were sited on hills or ridges, while 90% of the smaller barrows believed to be the actual burial mounds are found in low-lying positions 'at a convenient distance from the settlements. Barnatt further states that as the settlements 'are built in sheltered spots it explains these barrows' topographical bias'. More Early Bronze Age settlements need to be identified and more small barrows excavated before this hypothesis can be substantiated. As far

as the non-moorland sites are concerned, in particular those under discussion, the large as well as small barrows contained burials.

Structural diversity

The 9 barrows excavated show considerable variation in construction, which can be detailed as follows:

Turf mounds. Turves deliberately cut, probably with wooden shovels of Nancekuke type, and used as building blocks in the same manner as stone. Nancekuke, Trevellas and Crig-a-Mennis illustrate this technique as does nearby Carvinack (Dudley, 1964, Pl.III), while in the north of the county the large barrow at Otterham had a turf stack covering an inner cairn similar to Lousey Barrow (Dudley, 1961, 69 and Fig. 4). Most recently this turf construction has been observed at Colliford (Griffith, 1984, CR IVA) and is well known elsewhere in Britain (Ashbee, 1960, 44) including the Wessex chalklands (Christie, 1964, 41; 1967, 342 and Pl.XXXVII/1).

Slate cairns. Large inclined slates were used to form the mound over the central area and little or no earth/turf or clay appears to have been incorporated in the structure, even allowing for subsequent denudation, as at Treligga 1 and 2 and at Trevone (Buckley, 1972), though here the slates appear to have been smaller. Alternatively, small slates were used to build the cairn (*ie* Lousey) which was then sealed by an impervious clay. Unless sealed with the clay, a large cairn built of such small slates would be very unstable, as CKCA found when excavating the centre of Lousey barrow: the loosely packed slates kept slipping out.

Stone ring walls. Kerbs of horizontally laid stones were built round the area to be enclosed. In the case of Treligga 1, quartz appears to have been deliberately selected for the wall — white and therefore visible, and still visible when excavated. The inner arc of walling at Treligga 7 may represent the primary phase of an 'enclosure barrow' (Miles, 1975, 74–77) which was later mounded over with material from the ditch. In the case of Cataclews, the kerb wall was double and the outer ring appears to have been visible. Upright as well as horizontally laid stones were also used. The unreliability of the data makes it impossible to tell whether the enclosed areas were 'usable' (*ie* had entrances) (Griffith, 1984).

Ditches. Three of the barrows excavated had ditches and two of these, Lousey and Treligga 7, are the largest barrows in their respective groups. Enough of the ditch at Nancekuke was excavated to show that it was regular; only a small portion of the Treligga 7 ditch was cleared but it appeared to be irregular and to vary considerably in width, no doubt due to the intransigence of the subsoil. Equally small sections were dug at Lousey, where the ditch appeared reasonably regular. Insufficient evidence was obtained to indicate whether the ditches were continuous or were causewayed, as at Crig-a-Mennis. The decision on whether or not to dig a ditch appears to owe little to the nature of the subsoil, and may reflect a cultural tradition or, since both occur in cemeteries such as Treligga, even a social (?status) difference.

In the rare instances where more than one barrow in a group has been examined, and the structures recorded, it frequently transpires that the barrows show different forms of construction. This is well seen at Treligga in the present report, and probably at Cataclews, while the ritual sites of Carloggas I and Carloggas II/III are

different (Miles, 1975). Earlier accounts also record structural diversity within groups: two barrows on the Lizard, at Angrowse, were constructed of stone (Angrowse I) and 'entirely of earth' (Angrowse II) respectively (Borlase, 1872, 235–240), while the famous group at Pelynt comprised a cairn (with stone axe-hammer) as well as a large earthen barrow (with urn) which, from the description of its coloured layers, appears to have been a turf-stack (Borlase, 1872, 189–196 and Box & Couch, 1846).

It has been suggested that differences in construction material reflect availability, *ie* turves implying local grassland (probably pasture) and stones perhaps reflecting the clearance of plots for agriculture. While this may be true up to a point, it does not explain differences *within* a group, unless a radical change in land use took place during the period of use, nor does it account for the import of non-local materials (Miles, 1975). The use of quartz for certain aspects of construction appears to have been deliberate in some cases.

Burial practices

The burial deposits which have survived from the sites were all cremations. It is not known whether the cist at Treligga 7 contained an inhumation, but if so, it must have been a child; nor is it known what the disturbed 'grave pit' at Nancekuke may have held, though a cremation seems most probable. The contrast between the multiple burials in Treligga 1, in simple crevices in the rock, and the single burial in an elaborate corbelled cist of adjacent Treligga 2, raises intriguing problems of mortuary practice, token bone deposits, status, the role of women and so forth.

Cup-marked stones incorporated in the ring walls of Treligga 7 and Treligga 2 are a feature of this cemetery and find analogies elsewhere within the county, notably at Tregulland (Ashbee 1958) and Tregiffian (Dudley, 1968), both associated with food vessels; while 6 miles away, in the barrow cemeteries of the Camelford–Bodmin Moor region, three cup-marked slabs were found by ploughing in a barrow at Starapark (Trudgian, 1976b) though their original position in the mound is not known. More recently, an impressive series of cup-marked stones, presumably originally associated with a barrow, was revealed when the water level fell in the hot summer of 1984 at Stithians Reservoir (information from SMR, Truro), and a fine cup-marked slab was found in a barrow excavated near the Iron Age village of Chysauster (Smith, G., forthcoming). Cup-marked stones are known from barrows elsewhere in Britain and are assumed to have played a part in mortuary ritual (Ashbee, 1958, 66–68). A recent survey in North Yorkshire shows that they occur there mainly in coastal sites and rarely in moorland ones (Spratt, 1982), and this coastal distribution is further confirmed by recent work in Cleveland (Vyner, 1984, 192–3).

The possibility that an upright stone stood at the centre of Treligga 7 links this site with others such as Caerloggas III (Miles, 1975) where standing stones or timber posts (Christie, 1964, Fig. 4) have been found at or near the centre of barrows.

It is unfortunate that the barrow on St. Eval aerodrome proved so unproductive, since the high ground north of St. Columb, between the coast and the Camel river, is rich in barrow groups. Those on Denzell Downs, St. Breock Downs and Hustyn Downs are particularly noteworthy, since grave goods have been recovered from them (Borlase, 1872, 241–7). Borlase comments, however, that most of the barrows on these downs, when dug into 'with the utmost care', were unrewarding. This suggests that off-centre burials which would have been missed by the early barrow diggers, perhaps in cists as at Treligga and Cataclews, may have been the mode of

burial. The cist at Trevededar in St. Eval parish may have lain beneath a barrow (Harris, 1978). Although little mention is made of structural features in these early accounts, the barrows on Denzell Downs are reported as 'surrounded by a ring of stones, though in one or two instances it has been covered up or removed'.

It is difficult, and probably unwise, to attempt to find close and meaningful links between Cornwall and other regions, even adjacent ones, in the early Bronze Age, though the spread of Trevisker style pottery to the east must imply interrelation beyond the county early in the second half of the second millennium bc. Structural analogies, not surprisingly, can be found wherever barrows were built, especially those on similar bedrock, reflecting a broad common stratum in mortuary practice and barrow-building throughout the country, which must owe much to earlier generations. Turf construction, for example, is known from long barrows in Wiltshire (Beckhampton and South Street) and from the primary mound at Silbury Hill. The siting of barrows on high ground may have been over-stressed, but it does seem to be an important factor in the highland zone and on land where natural elevations do occur, such as the downlands of Wessex and elsewhere. The recent publication of barrows in adjacent linear cemeteries near Shrewton in Wiltshire illustrates this point well (Green and Rollo Smith, 1984).

As the information from a growing number of excavations has become available, the great structural diversity within the British round barrow building tradition becomes more apparent. Cornwall is no exception, and all the varieties of technique — ditches, kerb rings, cairns, stake circles, earth mounds, turf mounds, composite mounds, clay cappings — are found in the county. The significance of some of these, notably the enclosing post and stone-circles, in the Bronze Age ritual tradition of SW England, has already been ably discussed by Henrietta Quinnell (Miles, 1975, 75—6) and will not be elaborated here. Only stake circles are absent from the barrows discussed in this report, though they are known from moorland sites (Tregulland, Davidstow) and may well exist in unexcavated examples of the North Cornwall barrow groups. Slate cairns such as those of Lousey Barrow and Treligga are known from other areas where slate is the local rock and the large pitched slates over the central burial of Treligga 2 is echoed in Wales in the primary cairn at Trelystan Barrow 1 (Britnell, 1982, 148—9).

So far there is no evidence of any Cornish barrow having been built over an earlier Late Neolithic or Beaker site, whether funerary, as at Trelystan Barrow 2, or domestic as at Snail Down (Gibson, 1982, 240). Much of the lithic material appears to be residual Mesolithic. The enlargement of the Otterham barrow (Dudley, 1961) and the two superimposed cairns of Lousey Barrow may have been to include further burials though no evidence of these was recovered from either site.

In the absence of radiocarbon dates, little can be said about the absolute chronology of the individual sites described here. It is hoped these will be forthcoming before too long, and help to swell the all too meagre number of dates so far obtained for the earlier part of the Cornish Bronze Age. Meanwhile dating must rest on the ceramic sequence, which spans the latter part of the second millennium bc, with Lousey Barrow possibly falling rather earlier, before gabbroic clay began once more to be generally used in pot-making. It has been suggested above that Lousey Barrow and Treligga 7 may be the primary barrows in their cemeteries, on the basis of their size and situation. The beaker pottery at one and the food vessel in the other reinforces this. The barrow at Cataclews, with its rather later pottery (P8), would cede the primary position to another member of the group such as SMR 23

(or 24) containing the food vessel and stone battle-axe. Little can be said of Nancekuke, since no other barrows are known from the immediate vicinity, though the round at Nance to the southwest has produced flint scrapers and may, like Trevisker Round, have had an earlier Bronze Age phase (Johnson, 1980, 145). The unditched barrows at Trevellas and St. Eval must have been small, perhaps insignificant members of their respective cemeteries which themselves may well have been established in the first centuries of the second millennium bc.

In 1932 Hugh Hencken wrote that 'the Beaker Folk hardly touched Cornwall . . .' (Hencken, 1932, 66). Even by 1950 true beakers in the county numbered only three (Prah Sands, St Juliot and Tregiffian Farm), with a few sherds from Harlyn and the handled pot from Denzell Downs also included (Patchett, 1950, 46-7). Excavations and further finds over the past 30 years suggest, however, that Beaker penetration into the peninsula may have formed the starting point for many Cornish barrow cemeteries. It has been suggested that the spread of Beakers might be related to the spread of alcoholic beverages (Burgess & Shennan, 1976, 309-326) and in this connection it is interesting to learn that the small pot from Treligga 5 could have contained a substance such as mead.

The possibility that some of this Beaker penetration may have been by sea could usefully be considered. Only new material from datable contexts, and a rigorous study of the existing material prior to the establishment of the Trevisker pottery tradition, can hope to substantiate this suggestion. The excavations by C.K. Croft Andrew, despite the 40-year time-lag in publication, go some way to supporting it.

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Barley, Hertfordshire

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Review

CRAIG WEATHERHILL. *Cornovia: ancient sites of Cornwall and Scilly*. Alison Hodge, Penzance, 1985. £5.50 paperback.

This book describes itself as 'a comprehensive field guide to Cornwall's best and most interesting sites'. Its format consists of a very brief outline of Cornish archaeology and a section describing different classes of monument leading up to the main part of the book which is a gazetteer of more than two hundred sites.

The 'outline' accounts for Cornish archaeology in the space of four pages and a diagram. While millennia rush past and the sea level is rising an astonishing thirty-six metres we make a brief acquaintance with industrious mesolithic people and dynamic Beaker folk, class-structured warriors and tin merchants. Presumably the author wants to reach a wide audience including people with no archaeological knowledge, but this potted summary may baffle more than it enlightens. Non-archaeologists might find an explanation of the drawing conventions used on the site plans more helpful than the metric to imperial conversion tables provided in the introduction. The drawings are at such a scale that all it is necessary to know is that a metre is slightly longer than a yard.

In another section the author describes with evident enthusiasm the main classes of monument and specific examples, discussing interpretation and dating. His suggested reconstruction drawings show chamber tombs and fortified sites stark in their newness and emphatically man-made, before time merged them into the natural landscape.

The gazetteer is the main substance of the book and occupies more than three-quarters of its length. The sites are arranged alphabetically by district. Each is described, nearly all have a line drawing and nearly half have one or more photographs of varying clarity.

Craig Weatherhill has taken pains to make the Penwith section of the gazetteer different from that in his earlier work *Belerion: ancient sites of Land's End* published four years previously, and to which *Cornovia* can be regarded as a companion volume. For the new book he has selected forty-five Penwith sites, as against the hundred in *Belerion*, including some omitted from the previous work. He has rewritten and abbreviated the descriptions, regrettably cutting out anecdotes. He has provided different photographs, some of which are improvements, and redrawn the plans, in some cases incorporating the results of resurveys. Brane barrow, for example, has become quite a different shape. It would help in monitoring the state of the monuments if the date of survey was noted and if it was made clear whether all the plans which are based on earlier drawings by other people have been checked in detail by Craig Weatherhill himself.

Wherever *Cornovia* seems less than satisfactory the root cause can be found in the requirement to keep the book short and inexpensive. As a field guide one could wish that the site plans were larger and related to the surrounding terrain, and that advice about access and the state of the vegetation and descriptions of particular features were fuller. As an academic source book (though the author may not have seen this as its primary use) one could wish that it provided references to excavation reports. But a book which leaves its readers wishing for even more than the vast amount of information contained within the covers of *Cornovia* must be judged a success. *Cornovia* will bring a great number of monuments and sites to public attention and increased awareness of their value will reduce the possibility of their being ignorantly destroyed.

GILLIAN HUTCHINSON

Castle Dore: The Chronology Reconsidered

HENRIETTA QUINNELL *and* DAPHNE HARRIS

A reconsideration of the data from Castle Dore in the light of current dating of Iron Age pottery suggests that all structural phases on the site may belong to the 4th to 1st centuries BC. Absence of positive dating evidence for a post-Roman structural phase supports the tentative allocation of Period IV 'King Mark's Hall' to the pre-Roman Iron Age. Sherds of amphorae, imported in the pre-Roman period, are identified.

The hillfort of Castle Dore, situated on the high ground above the Fowey, was excavated in 1936 and 1937 by Dr Raleigh Radford. The results had, and still have, considerable importance, both because the excavations remain the most extensive on any Cornish hillfort, and because of the allocation of the latest phase of occupation to the post-Roman era and of a connection with the legendary King Mark. It is possible to re-examine the interpretations and dating given in the report (Radford, 1951) in the light of current knowledge of the chronology of the Iron Age in the South West and more generally of Iron Age structures. The types of evidence for occupation in the 5th/6th centuries AD, totally unknown in the 1930s, are also beginning to be understood. The longer sequence for the Iron Age hillfort which can now be postulated, and the lack of dateable post-Roman artefacts, makes it probable that all phases on the site belong to the pre-Roman Iron Age. This paper is intended as a sequel to Rahtz's (1971) summary of the suggested post-Roman phase. The hillfort's structural sequence will be summarised from the excavation report (Radford, 1951), which is now out of print and not generally available. Pagination references in the form [p 71] refer to that report. Comments on dating and interpretation are inserted where appropriate. Radford's data for the defences and structures of his Periods I and III are presented in Fig. 1.

The Earliest Hillfort and the Period I Huts

The original hillfort construction was bivallate, enclosing an area 225 ft (79 m) across. Both ramparts were of glacis construction with turf kerbs and of equal height (6 ft, 1.8 m); the second rampart swung outwards at the entrance to form a 'barbican', in fact a second enclosure allowing the site to be included amongst the distinctive South Western multiple enclosure group. Nineteenth century records suggest a slight third enclosure of some size, now vanished [p 4]. The original inner entrance was a simple 15 ft (4.8 m) gap without any inturn or timbering. The outer entrance was not excavated. The two entrances were linked by ditched banks on either side of the roadway, with entrances through into enclosures on either side. Some slight structural evidence was found just inside the southern enclosure. In the interior a number of structures were defined as contemporary with the initial hillfort phase (Radford's Period I huts). Six roughly circular depressions (24–34 ft, 11–12 m across) in the shillet bedrock [p 57] in line along the south side were surrounded by

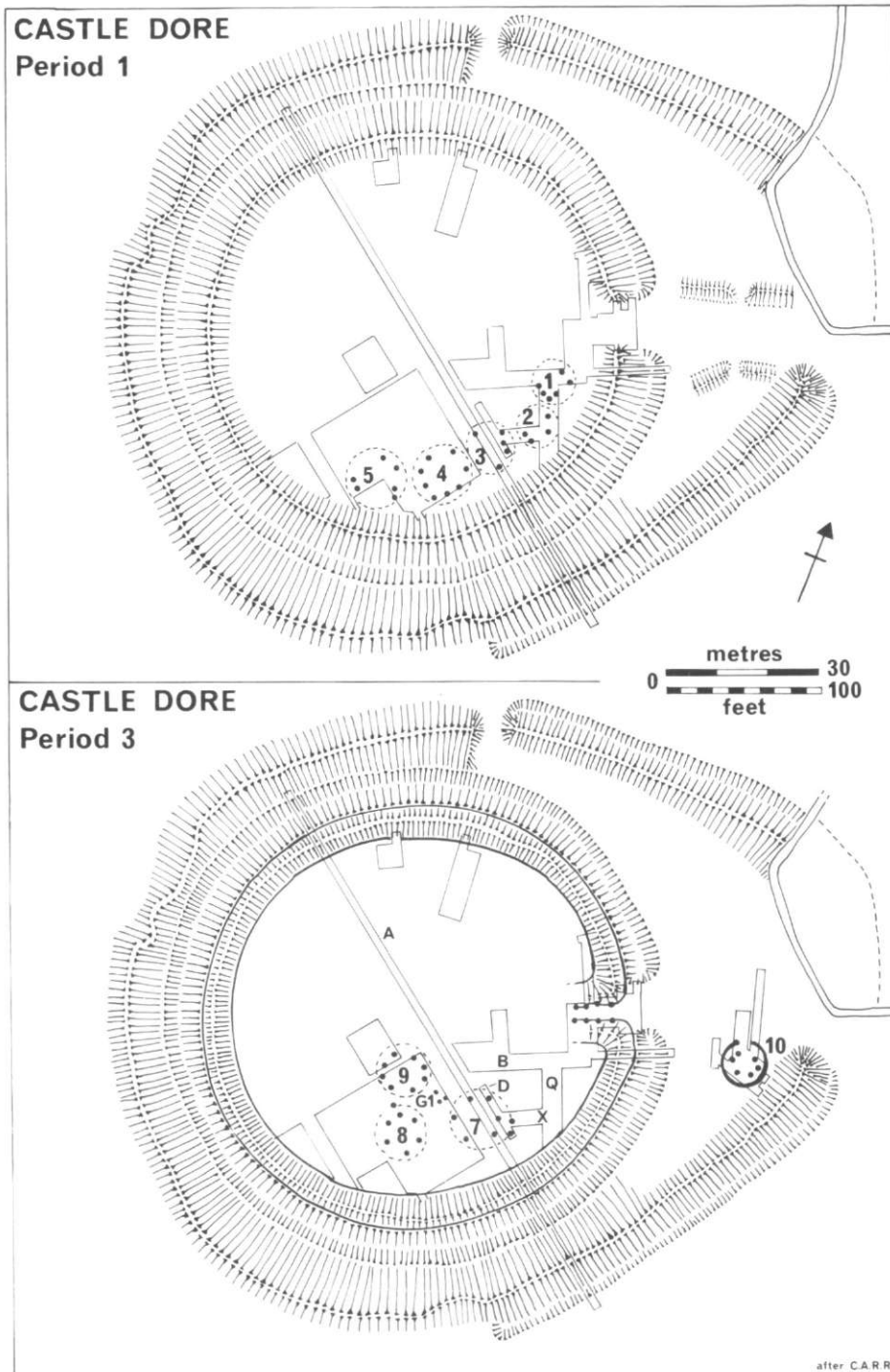


Fig. 1
The hillfort of Castle Dore, with indications of the structures belonging to Periods 1 and 3. The plan of excavation cuttings has been simplified.

irregular settings of posts (nos 1–5 in our Fig. 1 and a sixth to their west, not locatable on plan). A further depression was found inside the rampart just north of the entrance, and others suggested by trenching on the north side of the site. The hollows associated with these huts (or more properly houses) were filled with a dark greasy soil [p 31] sealed by a sterile stony layer which linked with a later reconstruction of the inner rampart.

Very little pottery was recorded as securely stratified, largely because of plough disturbance and the shallowness of the deposits. No material earlier than the South West Decorated / Glastonbury style is recorded. A little pottery of this type, though not sealed, came from the interior in this phase [p 87] and a considerable deposit from the occupation in the outer enclosure [pp 81 ff]. Radio-carbon dates from Killibury (Miles, 1977, 100) and from Meare in Somerset (Coles, 1981, 68) indicate that this style was already fully developed by the 3rd century bc. Despite difficulties with the calibration of radio-carbon dates at this period, it would be reasonable to assume that South West Decorated pottery was in a fairly developed form by the 4th century BC. The style would then appear to have altered very little through the three centuries or so of its currency. Consequently it is possible that this first structural phase of Castle Dore can be re-dated from the 1951 suggestion of 2nd century BC [p 80] to the 3rd or 4th centuries BC. Radford (*in litt.* 1984) states that the published Castle Dore datings were much influenced by the late dates then being ascribed by R.E.M. Wheeler to Maiden Castle. Iron Age sherds were found beneath the inner rampart [p 81] and an occupation level under the outer rampart [p 30]. Radford considered that the sherds, in a non-abraded condition, immediately predated the hillfort construction. These sherds (nos 1 and 2, Fig. 16) have simple geometric decoration with the motifs infilled by rouletting and 'white incrustation'. This decorative style is not replicated on the site. It has been suggested by Avery (1971) followed by Elsdon (1978, 403) that this material stands at the beginning of the Glastonbury / South West Decorated pottery sequence. A 5th to 4th century BC date is quite possible for these sherds and by implication for the initial construction of the hillfort.

An earlier date allows more time within the Iron Age for structural phases and alterations, and also for possible periods of disuse. The early huts probably underwent some alteration [pp 98–9]. Hut 6 of Radford's Period II overlay Hut 4 of Period I [p 103] and was assigned by him to the original hillfort phase. There were a large number of post-holes recorded but not assigned to any period because of lack of stratigraphic evidence and because in plan they formed no obvious patterns. It is probable that the pattern of structures and their sequence is more complex than this summary indicates.

As all the identified Period I structures had shillet-cut floors which became infilled with dark greasy soil and then overlain by a stony layer before the next structural phase, a period of disuse, of unknown duration, appears indicated. Recent work on sites such as Moel y Gaer, Clwyd (Guilbert, 1976) shows that many hillforts had successive phases of abandonment and re-use. Where occupation was apparently continuous, as at Killibury (Miles, 1977), the distinction between successive structural phases is much more blurred.

The Reformed Hillfort Defences and Period III Huts

The inner rampart was heightened to 8 ft (2.5 m), and the inner ditch recut, clipping the original turf kerb of the outer rampart. Stone revetments were con-

structed on both faces, set into the earlier turf kerbs and in places over rubble and occupation debris. At the entrance the rampart was inturned to form a gate passage at least 30 ft (9 m) long, revetted by substantial posts on either side, some of which may have supported a bridge over the gate. The gate passage was reduced in width to 7–8 ft (2.2–2.5 m). The outer rampart was not rebuilt and the banks on either side of the roadway through the outer enclosure were now much eroded and built over.

Radford's Period III huts [p 105] in the interior appear to belong to this phase. They post-date the stony layer sealing the earlier huts, the surface of which appeared to link with the new stone kerb of the rampart. The two best preserved of these huts, 7 and 8, had rings of six posts surrounded by rings of paving at a higher level than the floor within the posts. Two additional posts eight feet apart outside the paving ring were interpreted as a porch for hut 7; Guilbert's (1981) demonstration of the need for substantial door posts in the light stake outer walls of double ring houses provides an alternative explanation; the Period III huts may have been houses with an inner ring of posts and an outer stake wall of which only the door frame post-holes survive. This would however bring their diameter overall up to about 45 ft (14 m), rather large for the number of posts recorded in the inner rings. Two further huts of this post-and-paved-ring type were found in the outer enclosure, one (no 10) overlying the disused roadway bank and one in the north area (not precisely locatable on plan). However both these structures had surviving outer walls of shillet surrounding the paving and post rings. Presumably many of the unallocated post-holes also belong to this period. These structures had suffered far more from plough damage than had the earlier depressions. The dating of this phase has to 'float' at present, between that ascribed to the earliest hillfort and that of the latest phase still to be discussed.

Period IV Structures and the Suggested Post-Roman Re-occupation

The inner rampart was found, in one place only, to the north of the entrance, to be heightened by a layer of stones and earth, revetted on the inner edge with dry stone walling; this heightening and the revetment were set over a well-marked turf line. Just south of the entrance a similar heightening, again over a turf line, connected with an oval stone-walled hut, which was considered the latest structure in this area. The gateway itself had been disturbed by early medieval quarrying [p 21], but outside it a 'rudely paved roadway' [p 25] was located, 1 ft (0.3 m) higher than that associated with the earlier hillfort phases; the material underneath this roadway was considered as 'slighting' of the earlier defences. Associated with this late roadway, further out towards the outer gate, was another oval stone-walled hut.

In the interior, structures assigned to this phase, and described as of Period IV, were distinguished by post-holes in which slabs of stone set on edge were used to pack the posts. 'An undisturbed hole of this series shows four or more slabs firmly set and surrounding a rectangular or rectilinear hole. Very few were in this condition; more often only one or two slabs remained in position, the others lying in or above the hole. In other holes no stone remained set, but slabs of a similar size found in or on the edge of the hole have been accepted as evidence that it belongs to this series' [p 33]. These holes were not associated with other structural remains; they do not go with the depressions of Period I or the paved areas of Period III, nor do they form any obvious alternative pattern of round houses. They seemed to be later than the other features, but in one case only [p 115] is a post-hole of this type

recorded as cutting an earlier hole. In the main area excavated on the south of the site, Dr Radford interpreted these post-holes as two large aisled rectangular halls, an appended kitchen and two four-post granaries. The suggested structures are clearly illustrated by Rahtz (1971, Fig. 16). On the north side of the site similar large post-holes, lined with slabs, were found associated with a mass of roughly set stones which sealed the lower occupation levels, although the surface of the stones had been scraped up by the plough, leaving many of the blocks loose and on edge [p 38]. It is a little difficult to see from the section (Section IV, Plate XI) whether the post-holes would have cut through the paving block layer into the shillet below, or from what height they were apparent.

The last phase of rampart and roadway, the rectangular halls, and other buildings were interpreted by Dr Radford as relating to a post-Roman re-use (between the 5th and 8th centuries), most probably the 'llys' of King Mark. This interpretation was based on the proximity of the 6th century *Cunomori* memorial stone [Cunomorus being equated with Mark, pp 117-9], supported by the fact that these were the latest features detected on the site, and apparently by a few scraps of pottery and a bead which can now be redated.

There is no definite proof that the latest heightening of the rampart, the late roadway and the two oval huts are all contemporary, nor that these are of the same period as the structures represented by the slab-lined Period IV post-holes. The evidence for these post-holes needs some further examination. The interior had been ploughed, eroding the natural shillet and destroying stratigraphy and floor levels except in the immediate proximity of the rampart. Dr Radford says of the timber structures in general 'of these there remained only the post-holes cut into the shillet' [p 29]. In Appendix II [p 112] the depths of the post-holes are given, taken from the turf; the holes were not noted as being observed in any soil level above the shillet, except the group (not individually described) cutting the rubble on the north side. If these solidly built slab-lined post-holes are considerably later than the others, it would be reasonable to suppose that some of the stones would have stood up higher than the shillet and that they would have been noticed at some earlier stage of the excavation. There are a number of post-holes not ascribed to any phase or structure and so not individually described. Those post-holes ascribed to the Period I-III huts appear to have been so because of their apparent relationship *in plan* to the shillet hollows of Period I or the floors of Periods II-III. Many of the latest holes did not have their stone packing actually *in situ* but 'in or on the edge of the hole' [p 33], and their depths vary very considerably. About half of the Period I-III post-holes did not provide evidence of post-pipes; these presumably include those whose post-removal had disturbed packing. It is therefore possible that some of the post-holes assigned to Period I-III were originally slab-lined. The slab-lined post-holes *in toto* as published cannot therefore be accepted as a single cohesive group. It is probably reasonable to assume that most of them belong to a late phase on the site, but that some could be earlier, while others not identified as slab-lined may be contemporary. It is likely therefore that there was a third phase of occupation of the Castle Dore hillfort, and the extended chronology of the Iron Age given above would allow time for this to be included in the pre-Roman period.

If the slab-lined post-holes do not represent large rectangular aisled halls of the Dark Ages, another interpretation for them may be suggested. Recent large-scale excavations of hillforts such as Danebury or Moel y Gaer have revealed a large

number of four-post or six-post rectangular structures, often following the line of the surrounding rampart, taking up a good proportion of the interior, and contemporary with round houses. Several such planned hillfort interiors have been published for comparison by G.C. Guilbert (1975). It is probable that Castle Dore contained similar structures. Radford's granaries 2 and 3, 8 ft (2.5 m) by 6 ft (1.8 m) and 8 ft (2.5 m) by 8 ft (2.5 m) respectively, would be entirely suitable in an Iron Age context. Radford [p 59] himself identified a 7 ft (2.1 m) square structure of Period III as granary I; and a rectangular setting 6 ft (1.8 m) by 7 ft (2.1 m) in the centre of Period III hut 9 may also be a structure of this type. There are unexcavated areas inside the inner bank, notably the one surrounded by Radford's cuttings B, Q, X, D, in which he has had to postulate certain post-holes to complete the pattern of a post-Roman hall; it would be interesting to ascertain whether the missing post-holes are in fact as he supposes, or whether they could support an alternative pattern of four-post structures. Such structures are beginning to be recognised in the South West, for example at Killibury (Miles, 1977, Fig. 43). Another possibility is that many of the latest round houses on the site were stake-walled; Guilbert has demonstrated that from such houses only the post-holes from the door frames are likely to survive on ploughed sites (1975, 219). It is now recognised that paired post-holes of the Little Woodbury 'drying rack' type may be interpreted in this way, and Radford drew on the 'drying rack' analogy to account for some of his unphased post-holes [p 37]. These suggestions allow for a much more complex building sequence in the later phases at Castle Dore, with frequent replacements of structure and perhaps a long period of use. The re-interpretation of these rectangular structures as components of the Iron Age hillfort interior would still leave the two oval huts to be explained. They do not have to be assigned to the Iron Age also. They are not stratigraphically linked with the slab-lined post-holes, and could represent small scale Romano-British or later occupation.

If the latest structural phase at Castle Dore is to be assigned tentatively to the pre-Roman Iron Age, some further consideration of the supporting artefactual evidence is appropriate. The latest Iron Age material from the site comprises eight sherds of cordoned ware. Of these only three were regarded as stratified; one from the 'disturbed occupation layer' on the floor of the Period III hut 7 [p 89], two others from deposits within and beneath the Period III hut 10 [p 93]. Direct dating evidence for Cornish cordoned ware is still lacking. Its origins have been variously argued in relation to Caesar's conquest of Gaul and the effect of this on Gallo-British contacts. At present, the most likely explanation is that it represents a local imitation of north French cordoned wares that were imported into Dorset in the decades immediately preceding the Caesarian campaigns and subsequently spread westwards by coastwise trade (Cunliffe, 1982, 50). This allows a possible timespan for cordoned ware from c. 80–50 BC until the adoption of Roman-influenced wares in Cornwall, perhaps towards AD 100. If the cordoned ware sherds from Period III huts 7 and 10 at Castle Dore are accepted as reliable dating evidence, the chronology of the later phases, with their suggested complex structural sequences, is unduly compressed. The cordoned sherd from the level [assigned to Period I, p 41] beneath hut 10 must surely be intrusive — unless the whole sequence on the site is to be compressed into the last century of the Iron Age. If it was intrusive, the sherd from hut 10 above this context might also be regarded as suspect. All the cordoned ware at Castle Dore could therefore be regarded effectively only as an unstratified group and as no more than a general indicator of the latest date of Iron Age occupation.

Periods III and IV would date successively after the suggested 4th—3rd century BC date of Period I. The small quantity of cordoned ware may indicate that the use of the hillfort ceased before the arrival of Rome.

Some Comments on the Artefacts

The site produced two pieces of pottery which were considered [p 94 and Fig. 18, also Rahtz, 1971, Fig. 54] to be imported ware attributable to 'the period of the early medieval palace'; M1 — a rim sherd of a shallow flanged bowl, wheel made, of a gritty rather friable brown ware, with washed grey surface, similar in shape to some imported fine red pottery of the 5th to 7th centuries, but of a different paste and colour, found in a post-hole of hut 6 (Period III); M2 — the neck of a jar of hard fine ware, found in the interior but unstratified. These sherds cannot now be located. The fabric description of M1 is very similar to that of others [p 93] which have a cordon and so are attributed to the Iron Age. The shape of the drooping rim can be paralleled at Romano-British sites such as Goldherring (Guthrie, 1969, Fig. 13, 9—13), as can be everted rim of M2. Most of the Iron Age pottery from the site was probably made from the gabbroic clay of the Lizard peninsula, as it is visually similar to material identified after petrological examination by Dr D.P.S. Peacock (1969). One sherd was confirmed as of gabbroic fabric by Dr D.F. Williams.

The widespread if scanty occurrence of imported post-Roman wares in western Britain, especially B ware amphorae, makes it apparent that these are now to be expected even on sites of assumedly humble status (eg Trethurgy, Miles, 1973, 28). Radford [p 61] explains that 'the scarcity of objects associated with this (post-Roman) phase in the occupation is due to the entire destruction by ploughing of the associated floor levels', but much, earlier, Iron Age material survived in plough-soil levels. At Killibury the only sherds of both Bronze Age and imported post-Roman pottery were found in the base of the ploughsoil (Miles, 1977, 107—8). Alcock (1972, 81) establishes the survival of post-Roman material on the ploughed interior of South Cadbury, but suggests that some sites may have to be assessed on 'architectural evidence' or 'historical associations'.

As a further check, the pottery held in the museum of the Royal Institution at Truro was examined by the authors. Twenty-two amphora body sherds were found, all apparently from topsoil or unstratified contexts, and three of a white fabric (see below). Otherwise all the material present appeared to be appropriate to the Cornish pre-Roman Iron Age. Eight of the amphora sherds were examined by Dr D.F. Williams, Southampton University, in 1981; three had no features distinctive of origin or date. Williams describes four sherds, including one selected by the authors from a visually similar group of fifteen bagged together, as follows:

'All four sherds are quite distinctive in thin section, each containing frequent grains of augite, quartz, feldspar and volcanic rock, with some accessory garnet. This mineralogy is indistinguishable from that associated with certain Italian Dressel 1sp and 2—4 wine amphorae (Peacock, 1971, Fabric 1), and it would appear highly likely that the Castle Dore sherds belong to one or other of these amphorae types. It can be difficult to differentiate between featureless body-sherds of Dressel 1 and the later 2—4 variety, and this is certainly the case with the Castle Dore material. The latter sherds, therefore, have to be fairly flexibly dated, some time between the mid 2nd century BC, with the first appearance of the Dressel 1A form, and the mid 2nd century AD, the closing date of the Dressel 2—4 type.

Williams comments on the eighth sherd:

'Both in the hand-specimen and in thin section, this sherd closely resembles the fabric of the Catalan wine amphora Dressel 1 — Pascual 1. This form of amphora, only recently recognised in Britain, probably dates from the late 1st century BC to early 1st century AD (Williams, 1981). Castle Dore is the most westerly find-site so far recorded, the others being Bagendon (Gloucestershire), Poundbury, Hengistbury Head and Cleavel Point (Dorset), Owslebury (Hampshire), Knighton (Isle of Wight) and Thaxted (Essex).'

Williams' full report has been deposited at Truro Museum and at the Cornwall Sites and Monuments Register. Additionally there are three white featureless body sherds of which one has been examined by John Allan, who comments that 'they are probably Roman, possibly from the lower parts of the body of a 1st century flagon'.

The amphora identifications, while failing to confirm post-Roman re-occupation of Castle Dore, are of interest in the context of the Cornish Iron Age. Sherds of Dressel 1 Italian wine amphorae have now been recognised at Carn Euny (Williams, 1978, 406) and Trethurgy (Williams, forthcoming), and this sparse scattering forms a consistent pattern with most of southern England (Cunliffe, 1984, 5). The Spanish Dressel 1 — Pascual 1 sherd is, however, the first of its kind from Cornwall, with the possible exception of four sherds of Spanish type amphora from Castle Gotha (Saunders and Harris, 1982, 143 no. 88).

Five glass beads were listed in the excavation report of which one, of opaque yellow paste [Fig. 8:4, p 69], was described as being of 'material common in Saxon graves but do(es) not appear to be recorded from pre-Roman sites in Britain'. Such beads have been the subject of recent research by Guido (1978). This study, and re-examination of the material by the authors, reveals that the written descriptions in the Castle Dore report do not directly correlate with the illustrations. Thus the only yellow glass bead is one of annular shape [Fig. 8:3], Guido's Class 8, which occur in Britain with reasonable frequency from probably the 3rd century BC onwards. Of the other beads, three are blue and annular (Guido's Class 6), a type occurring from the 6th century BC, and the fourth blue and of globular shape (Guido's Class 7), a less common type that is recorded in a pre-Roman context at Meare, Somerset (Guido, 1978, 70 and 172). Thus all the beads can now be safely ascribed to the pre-Roman Iron Age.

Archaeological Interpretation and Legend

At the beginning of his report Dr Radford discusses the aim of his excavation. He speaks of the importance of the ridgeway route between the Camel and the Fowey, and continues:

'Castle Dore is so placed that it controls this road, and here, if anywhere, we might expect to find the seat of the chieftain who ruled this area in the early Middle Ages. A further indication is afforded by the inscribed stone now set in the crossroads outside the entrance to Menabilly, 1½ miles south of the site. This 6th century memorial, which probably stands not far from its original position, commemorates Drustans, the son of Cunomorus, a name applied to King Mark. It was with these considerations in mind that the excavation was begun in the hope that it might reveal a Celtic royal seat of the earliest medieval period' [p 7].

It would indeed be pleasant to think that here, close to Lantyan farm, was the site of the place to which, in the medieval legend, Tristan returned

A Lancien, a la cite

and where, crossing the bank and ditch by the gate passage,

Par le fosse dedenz avale

Et vint errant tresque en la sale.

Beroul, *Roman de Tristan*, (lines 2453, 2457–8)

The hope to localise the Lancien of the romance is one shared by many besides Dr Radford. But we tend to find what we are looking for. It would appear that the wish has been father to the thought, and that a site which may have been occupied only in various periods of the Iron Age has been attributed to the Dark Ages for other than purely archaeological reasons.

The origins of the Tristan story have been often discussed, most recently by Padel (1981), and it now seems likely that although the legend in its 12th century form was localised in Cornwall, and may even have originated there, we shall delude ourselves if we expect to find real historical prototypes of the characters of the romance. Perhaps we should not try to tie down such great legends to any one time or place. Castle Dore itself, however, is not legend but fact. Here is a hillfort in a prominent position on the ridgeway route, with several well marked phases of Iron Age occupation. It holds an important place in the multiple enclosure series identified by Lady Fox where an open space between the ramparts suggests a pastoral economy. Not many hillforts of this type have yet been examined, and earlier archaeologists tended to concentrate on the defences and neglect the interiors. Dr Radford was a pioneer in the study of hillfort interiors, and his excavation is an important one. The finds include material rare in Cornwall — amphorae sherds, beads, Kimmeridge shale bracelets and, rare in Britain, the two glass bracelets (Fitzpatrick, this volume). The collection is appropriate for a site suitably located to benefit from coastal trade, and at present is unique in the whole south western peninsula. It would be a pity if at Castle Dore one phase of the occupation, for which the interpretation is doubtful, should be considered above others of which there is no doubt, and that this undue emphasis should obscure the value of Dr Radford's great contribution to the archaeology of the Iron Age in south-west England.

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Department of Extra-Mural Studies, Exeter University and Truro

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The Iron Age Glass Bracelets from Castle Dore

ANDREW FITZPATRICK

The two Iron Age glass bracelets from Castle Dore are discussed. One example belongs to the earliest type of Iron Age glass bracelet and dates to between the mid-third and earlier second centuries BC. The second bracelet is of a slightly later type and dates to between the mid-third and later second centuries BC. The Castle Dore finds are unique within the small group of British and Irish Iron Age glass bangles and are also probably the earliest examples. Because of this, both the bracelets may be imports of middle La Tène date.

Introduction

In his excavations at Castle Dore (SX 103458), Raleigh Radford discovered fragments of two glass bracelets (1950, 68–9, Fig. 8, 1–2). At that time although glass bracelets of Roman date were well documented (Kilbride-Jones, 1938), few other finds from Iron Age sites in Britain and Ireland had been published and Radford considered the Castle Dore examples to be imports from continental Europe. Today the Castle Dore bracelets remain rare finds (Stevenson, 1954–55; 1976; van Lith, 1977) and while numerous and divergent comments have been made about them (eg Bersu, 1977, 63, n 2; Fox, 1973, 142), no attempt has been made to assess them in the light of recent research. This note attempts such a discussion.

The two bangles may be described briefly. The first is a fragmentary example in a pale green translucent metal decorated with an opaque yellow band on the inside face. It has a roughly D-shaped section. The bracelet falls within Group 1 of Haevernick's standard typology of Iron Age glass bracelets (1960, 41–2, Tafn 17,1; 18, Karte 1), although it should be noted that it is an extremely large example. Haevernick's Group 3a bracelets are of similar form but are smaller and lighter and rarely occur in glass of this colour. The second bracelet is in a deep ultramarine translucent glass and is also broken. It has a complex ribbed section with 'knots' on the outside face and belongs to the group of bracelets with diagonally set clusters of three-four 'knots' in Haevernick's Group 14 (*ibid*, 61–3, Tafn 11, 14,75; 17, 14; 28, Karte 21).

Iron Age Glass Bracelets in Britain and Ireland

Many more glass bracelets from Iron Age sites have been discovered since the publication of the Castle Dore report. At least thirteen findspots are now known¹. These are discussed by Peter Crew in a forthcoming paper and because of this, discussion of them here will be restricted. Despite these new finds, in comparison with continental Europe, bracelets are still relatively infrequent in Britain and Ireland. In part this rarity is due to the large number of finds from continental La Tène C inhumation burials² whereas in Britain and Ireland at this time the methods of disposing of the dead — possibly excarnation — leave few obvious traces or grave goods (Whimster, 1981; Raftery, 1981; Wilson, 1981; Walker, 1984). By contrast, in the late La Tène (La Tène D) the large number of glass bracelets from settlements,

particularly *oppida* (Collis, 1984, 98–100), leaves little doubt that they were much more common in continental Europe than in Britain and Ireland.

In these islands bracelets of materials such as shale, jet or bronze are more common than ones of glass (Stead, 1979, 73–7; Cunliffe, 1982, 64, Fig. 15)³ and it seems that bracelets made of these materials and possibly organic ones such as wood, largely satisfied the needs for this type of jewellery. On the continent bronze bangles are common throughout the Iron Age but sapropelite and schist bangles seem not to have been manufactured after the mid-second century BC when they appear to have been superseded by ones made of glass.

Although often called bracelets, the continental funerary evidence shows that bangles could be worn as either anklets, armlets or bracelets but glass bangles do appear to have been worn predominantly as bracelets and their size supports this interpretation (Haevernick, 1960, 39). The same evidence also shows clear correlations between the wearing of bangles and gender, with bracelets generally being a characteristically female piece of jewellery⁴. However, the limited amount of insular funerary evidence shows no match between either gender and/or age, suggesting that in burial rites at least, bracelets were not used to symbolise rank or status in a manner similar to continental Europe.

The insular bracelets have been found mainly on settlements. The earliest of these finds may be from Gussage All Saints where a fragment of a light blue coloured bangle was found. This bangle apparently comes from a Phase 1 context (Wainwright, 1979, 104, Fig. 79, 6010), but from the published account the precise context is less clear and it is possible that the bracelet could be from either Phase 1 or 2. As reviewers have pointed out (Champion, 1981; Collis, 1982), there are major difficulties with the published dating and interpretation of these two phases and while the bracelet could be as early as fourth century BC, it might be as late as second century BC. Another possibly early example, but not as yet precisely dated, is a blue bracelet with yellow and white decoration from Meare Village East (Avery, 1968, 30) which could be of third or second century BC date (cf Orme *et al*, 1981). Some of the Hengistbury Head finds could be of later second century BC date (Cunliffe, 1978, 42–4; 1984). In general, however, most of the insular specimens date to the first centuries BC and AD although some of the finds from the 'Atlantic province' could be Roman Iron Age in date.

While relatively small, the number of findspots now recorded in Britain and Ireland does suggest that at least some of the glass bracelets may have been manufactured here, but supporting evidence is rare. One of the Ballacagen (Isle of Man) bracelets (Bersu, 1977, 63, A 43; Fig. 21, A 43 and possibly also A 44) appears to be closely related to Guido's Class 5 'Hanging Langford' glass heads, but these beads may themselves be imports (Guido, 1978, 51–3) — they seem to correlate directly with Haevernick's Group 20 'ring beads' — and so are of little help in trying to decide if one or both were manufactured in Britain. Perhaps more pertinent to the question is the possible evidence for glass working from Ballacagen and Cunliffe's (1984) suggestion that the bangles recently excavated at Hengistbury Head were manufactured there.

Where the Castle Dore finds fit within this insular group is uncertain, for both are unique to it. While this is not surprising in such a small collection (and there are other unique examples within it) it does hinder consideration of the possibility raised by Radford (1951, 68–9) that the Castle Dore bracelets were imported from continental Europe. This difficulty is compounded by other factors.

The standard work on Iron Age glass bracelets by Haevernick was published in 1960, but the data considered in it were effectively collected by 1939 (Peddemors, 1975, 93, n 1). While that information was substantially complete for central Europe, other areas were considered in less detail, or through secondary sources, while Britain was not considered at all. One illustration of the variable quality of the data is given by a recent survey by Peddemors (1975) of bracelets from the Netherlands which recorded virtually a sixteen fold increase in finds in comparison with Haevernick's work. Unfortunately there has not been a comparable recent survey of the French material, perhaps the most likely source of the Castle Dore bracelets if they were imported. The data for France included by Haevernick (1960, Anh 2, 214–17) are very incomplete and attention may be drawn to a number of more recent discoveries (eg Wheeler and Richardson, 1957, 52, Fig. 10, 6; Giot, 1960, 189; 1979, 306, citing further examples), but it is beyond the scope of this note to attempt a discussion of them.

Because of the unevenness of the research the origin of the Castle Dore bracelets must remain uncertain but, as will be argued below, the probable dating of them — particularly the first one — places them at the head of the insular finds. Both this and their uniqueness within the insular group suggest that both may be imports.

The Dating of the Castle Dore Bangles

Even in the light of the revised chronology for the Iron Age occupation of Castle Dore propounded by Quinnell and Harris (123–132 above), there is still no precise internal dating evidence for the Castle Dore bracelets. Because of this and the uncertainty of the chronology of the insular series, the dating of the Castle Dore bracelets must be adduced from the continental European evidence. This procedure is not entirely satisfactory but it is adopted here *faute de mieux*.

The chronology of the central European glass bracelets has been discussed thoroughly by both Haevernick (1960) and Venclová (1980) and while that of the French is less certain, it appears broadly to follow the central European sequence.

Haevernick (1960, 78–82) considered her Group 1 or 'Montefortino type', of which the first Castle Dore bracelet is an example, to be the earliest Iron Age glass bracelet. The earliest dated example is from the late La Tène A *Fürstengrab* at Reinheim, in the Saarland in western Germany, which belongs to the first half of the fourth century BC. The other early finds cited by Haevernick all come from burials within the area of Italy settled by the Celts from the early fourth century BC onwards. As Haevernick pointed out, it is nevertheless difficult to decide whether the bracelets are of Celtic manufacture, as there are few other 'Celtic' objects in these burials. For example, the burials from Comacchio and Monterelo, dating to the last quarter of the fourth century BC and the early third century BC respectively, have been called 'Celtic' largely on the basis of the glass bracelets found in them. As these are amongst the earliest 'Celtic' bracelets, the correctness of this attribution must be slightly suspect, and whether they are Celtic, Etruscan or represent one aspect of the Hellenistic influences in central Italy and along the Adriatic seaboard (Zanker, 1976) remains uncertain. The one burial which probably *is* Celtic is burial 30bis from the cemetery at Montefortino. In his recent reassessment of the cemetery Kruta (1981, 23–33) places this burial in the final phase (Montefortino 'C'), which on historical grounds he dates c. 283–268 BC, a period after the Roman conquest and a time at which Kruta considers the Celtic communities in Italy to have been becoming increasingly susceptible to Mediterranean influences.

Whatever the origins of the Italian pieces, the Reinheim find is by far the earliest Celtic glass bracelet north of the Alps — unless it too is an import alongside the many pieces of undoubted Mediterranean origin included in the burial. Most other dated Group 1 bracelets are up to a century later⁵. A number of Group 1 bracelets occur in La Tène C1 inhumation burials in western Switzerland (eg Gempenach and Illiswil: Haevernick, 1960, 98) and there are finds of similar date from the Dürrenberg bei Hallein in Austria (Haevernick, 1974, 148) and Mistrín in Czechoslovakia (Venclová, 1980, 86, Table 4). These finds suggest that Haevernick's Group 1 bracelet was generally current from the mid-third century BC to the first third of the second century BC (Venclová, 1980, 89) although the Italian and Reinheim finds are earlier. If the earliest finds are excluded, the general currency of the Group 1 bracelet is no earlier than a number of other types of bracelet. It is clear from settlement finds of La Tène C2–D date, both *oppida* and farmsteads, that by this time Haevernick's Group 1 bracelets had been replaced by the lighter bangles of her Groups 2 and 3 (Polenz, 1982, 107–8 esp Anm 118, 120). They are particularly common on settlements of La Tène D date (eg Fischer *et al*, 1984, 348–52; Stöckli, 1979a, 29–39). If the first Castle Dore bracelet were to belong to Group 3a, although this seems unlikely, then it would probably be of this date.

In view of this evidence there seems little doubt that on typological grounds the first bracelet from Castle Dore is the earliest find from Britain and Ireland, possibly followed by the finds from Gussage All Saints, Meare Village East, and the second bracelet from Castle Dore.

The second bracelet from Castle Dore belongs to Haevernick's Group 14. This group is well dated although the precise chronology of its various sub-types is less clear, if indeed they are of any chronological significance. Polenz has suggested that where Group 14 bracelets made of blue glass have been found in burials, these burials have been of La Tène C1 date, with the exception of the burial from Horgen in Switzerland which he dates to the La Tène C1–2 transition (1982, 106, Anm 114, 109)⁶. While this appears to be true, there are a number of finds from *oppida* which are rather later: Breisach-Hochstetten, Manching, Romhild, Staré Hradisko and Stradonice. Although occupation at Manching had started by La Tène C1 (Stöckli, 1974), most of these *oppida* developed in La Tène C2 (Collis, 1984, 97). Both Manching (Stöckli, 1979b) and Breisach-Hochstetten (Stork, 1981; 1984) ceased to be occupied by the mid-first century BC (end of La Tène D1) but other sites such as Stradonice continued to be occupied until the Augustan period. The type does, however, appear to be absent from sites founded in the La Tène D2 and possibly from ones founded in La Tène D1. The latest date ascribable to a Group 14 bracelet is one in the hoard at Gurvech in Morbihan. This hoard contained a variety of objects (Rollando, 1971, 112–13), P6 facing p 97) although *pace* Radford (1951, 69), the Group 14 bracelet is not identical to the one from Castle Dore. On the basis of the Celtic coins in the hoard (Colbert de Beaulieu, 1953; 1954) it was probably deposited around the middle of the first century BC. Haevernick (1960, 89) suggested that the hoard is of Caesarian date but it could well be later, along with a number of other hoards from Armorica and the Channel Islands (Fitzpatrick and Megaw, forthcoming). Along with most of the other glass bracelets in the hoard (Haevernick, 1960, 89) the Group 14 example was fragmentary, and may have been old when it was buried. Even allowing for the last possibility, the number of finds from *oppida* must qualify both Polenz's dating of Group 14 bracelets to La Tène C1 (1982, 106, 109) and Venclová's suggestion that they date to La Tène C1 and the

beginning of C2 (1980, 88). Instead, a rather longer chronology, possibly to the beginning of La Tène D, c. 125 BC, is possible.

Conclusion

The general lack of evidence concerning finds from France is regrettable, but on the basis of the central European chronology outlined above, it is possible that the two bracelets from Castle Dore may be of slightly different dates. The first bracelet probably dates to between the mid-third century BC and the first third of the second century BC, although it could possibly be earlier. If the bracelet is of Group 3a rather than Group 1 it is likely to date between the later second century BC and the end of the first century BC. The second, 'knotted', bracelet could be as early as the first, but it might be as late as the end of the second century BC.

As we have seen, this probably places both Castle Dore examples at the head of the British and Irish finds and this, combined with their uniqueness to that group and the fact that they belong to well defined continental types, supports the suggestion made by Radford (1981, 68) that they were both imported from continental Europe. France remains the likeliest source for the bracelets if they were imported. They need not be seen as the only contemporary glass imports for, as Guido (1978, 25–31) has suggested, some types of beads may also have been imported at this time⁷. It seems certain, however, that the bracelets from Castle Dore either form part of the rather limited evidence for contact along the Atlantic seaboard in the British Middle Iron Age (Cunliffe, 1982, Figs. 5–6), or belong to the earliest stages of the better-documented phase of increased contact in the Later Iron Age (Fitzpatrick, 1985).

Notes

1. Castle Dore, Cornwall; Hamworthy, Hengistbury Head and Gussage All Saints in Dorset; Meare Village East, Som.; Welwyn Garden City, Herts.; Ballacagen, I.o.M.; Dunadry, Antrim; Loughy, Co. Down; Freestone Hill, Kilkenny. The Irish finds are discussed in Raftery, 1984. Some of the finds from Bryn y Castell, Gwynedd may be pre-Roman, as may be those from Silchester, Hants and Close ny Chollagh, I.o.M. All of these finds and some others will be discussed by Peter Crew in his forthcoming paper with Julian Henderson on the Bryn y Castell finds. I am grateful to him for drawing my attention to some of them.
2. For the sake of convenience, the chronological periods used in this paper generally follow the scheme developed for central Europe by Reinecke. Recent discussion is conveniently summarised in Polenz, 1982, 116–28.
3. Cunliffe (1982, 49–50, Fig. 15) suggests that the later Iron Age shale vessels found in eastern England were made in Wessex, but Kennett (1977, 20) has advanced convincing reasons to suggest that they were made in Bedfordshire.
4. Though it should be noted that the Group 1 bracelet from grave 9 at the Durrnberg bei Hallein, mentioned below, was found on the arm of a mature male.
5. Some of the earliest finds of other types of bracelets or rings have been made in the Champagne. These have been interpreted as bracelets by Joffroy (1969) and Bretz-Mahler (1971, 69, 81–2) but were considered by Haevernick (1960, 66–7, 82–3) to be a separate type (her Group 18) of 'half-sized' rings which were attached to torques as pendants. The contexts of the finds are very early, La Tène 1a and one is possibly Hallstatt D, but they form a discrete geographical group (*ibid*, Taf.30, Karte 26), so even if some of the disputed finds (eg from Chassemy and Pernant) were bracelets rather than half-sized rings, it is difficult to decide how much weight to attach to them in the development of Celtic glass bracelets.

6. Polenz lists nine sites. To these should be added eight finds from La Tène C1 burials in Czechoslovakia (Venclová, 1980, 66, Table 2) and one from Mokronog in Yugoslavia (Guštin, 1977, 79, Table 12, 7).
7. For continental European beads see now Haevernick, 1983.

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University of Leicester

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The Glass from Castle Dore: Archaeological and Chemical Significance

JULIAN HENDERSON

Introduction

This report provides archaeological evidence for the possible source of the Castle Dore glass through its chemical analysis. Although only two out of the six artefacts discussed here¹ were stratified, the first three described below are of diagnostic Iron Age types.

The first section of this report adds to the descriptions of the glass published by Radford (1951, 68–70) and Guido (1978, 155, 172 and 179). In addition, techniques of manufacture for the artefacts are suggested based on visible features. The second section describes the main chemical characteristics of the Castle Dore glass seen in the context of other British Iron Age glass analyses, and in the final section the overall archaeological implications of these analyses are discussed. There is some confusion in relating Radford's (*ibid*) published illustrations and descriptions of the Castle Dore glass, which is disentangled below.

Description, Manufacturing Techniques and Archaeological Contexts

1. The fragment of glass (Radford, 1951, 68–9, Fig. 8,1) composed of a transparent green matrix with applied opaque yellow glass has been described as a bracelet fragment. Some regularity in the modelling of one edge of the object indicates it might have been part of such an artefact, but curvature of the edge which is partly composed of opaque yellow glass is irregular and it is fractured. If the artefact is considered to be part of an armlet and assuming it had a symmetrical shape, a reconstruction of the cross section gives the armlet a maximum depth of c. 3 cms, and this would make it atypically massive and heavy. An alternative interpretation is that this fragment is a lump of scrap glass or cullet intended for re-use in the manufacture of opaque yellow or green beads. Indeed, even if it is accepted that the fragment is that of an armlet, it can still be suggested that it was never a complete artefact while at Castle Dore, and was due to be re-used in any case. The artefact was found in a 'later' post hole in the area of Hut 5 and is therefore probably of period I of possible 4th–3rd century bc date (see Quinnell and Harris, this volume).
2. As discussed by Fitzpatrick (this volume) the fragment of armlet of cobalt-coloured blue glass is of a type common in middle Iron Age Continental contexts. Bearing in mind its regularity, the moulded exterior was quite possibly produced by centrifuging into a mould (Haevernick, 1960), or alternatively the lost-wax technique might have been employed. A comparable technique would have been used to manufacture the highly decorated blue glass bead from Boxford, Berkshire (Guido, 1978, 176 and Fig. 23,7) which exhibits complex plastic modelling and is in fact the only imported artefact comparable to this armlet fragment which is known to the author, although unfortunately it is poorly provenanced. This armlet fragment was unstratified.

Table 1:
Quantitative chemical analyses of Castle Dore glass: Weight percent oxides.

<i>Guido (1978)</i>		<i>LUMP</i>		<i>LUMP</i>		<i>C8</i>		<i>G7v</i>		<i>G7v</i>		<i>G6ivb</i>	
<i>Bead Type</i>	<i>(G = Group, C = Class)</i>	<i>1</i>	<i>1</i>	<i>1</i>	<i>3</i>	<i>4</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>Transparent Blue</i>	<i>M</i>	<i>Transparent Blue</i>	<i>M</i>
<i>Text No.</i>		<i>Transparent Green</i>	<i>Opaque Yellow</i>	<i>Opaque Yellow</i>	<i>Opaque Yellow</i>	<i>Transparent Blue</i>	<i>Transparent Blue</i>	<i>Transparent Blue</i>	<i>Transparent Blue</i>				
<i>Colour</i>		<i>M</i>	<i>D</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>	<i>M</i>				
<i>Matrix or Decoration</i>													
Na ₂ O		12.9	4.2	11.3	13.8	15.9	12.8						
MgO		0.6	0.7	0.7	0.7	0.8	0.7						
Al ₂ O ₃		1.2	2.4	1.5	1.0	2.4	2.2						
SiO ₂		74.0	39.5	41.9	71.9	67.3	69.1						
K ₂ O		0.3	1.1	0.4	0.3	0.6	0.8						
CaO		6.2	3.7	4.5	7.3	8.1	9.2						
SnO ₂		ND	ND	ND	ND	ND	ND						
Sb ₂ O ₃		ND	2.5	2.8	0.3	ND	ND						
TiO ₂		0.1	—	—	0.01	0.03	0.05						
MnO		ND	ND	ND	ND	ND	ND						
Fe ₂ O ₃		0.84	3.5	2.16	1.0	0.79	1.01						
CoO		ND	ND	ND	0.03	0.02	0.21						
CuO		ND	0.01	0.04	0.09	0.23	0.27						
PbO		ND	42.14	34.31	ND	ND	ND						

3. Half of the opaque yellow ring bead from Castle Dore of Guido's (1978) class 8 is now available to study. It was illustrated by Radford (1951, Fig. 8,3) as a complete bead. The relevant text in Radford's report is to be found under the sub-heading Fig. 8,4. The bead fragment has the flat facets adjacent to the hole typical of the beads which were probably manufactured at Meare Lake Village in Somerset (Guido, *ibid* and Henderson, in press, *a*). The bead is in fact of a high lead glass which is comparable in a general sense to that which forms part of No 1, and there is in fact no technical reason why the term 'paste' should be used to describe it (*cf* Radford, 1951, 69). Through the chemical analysis of many other comparable Iron Age examples we can be fairly certain that the bead is not of Anglo-Saxon provenance (*cf, ibid*). It was probably manufactured by winding an opaque yellow filament of glass around a cylindrical former/rod and the flat facets produced by rubbing the bead with a fine abrasive (Henderson, in press, *a*). Unstratified.
4. Blue transparent globular head with a protrusion next to the hole (Radford, 1951, Fig. 8,4, text under sub-heading 8,3). The bead was probably produced by gathering the glass from the batch on a metal former. The protrusion next to the hole was probably formed when the filament still attached to the bead broke away as the glass was removed from the crucible. The bead would then have been reheated to remove the sharp edge. From the occupation layer of Hut 1, probably of period I, possibly of 4th–3rd century bc date.
5. Globular transparent blue glass bead. (Radford, 1951, 70 and Fig. 8,5). Probably manufactured by gathering, as in number 4. Unstratified.
6. Irregular annular bead of cobalt blue glass. A thin protrusion of glass adjacent to the hole and the fact that the bead is also relatively thin indicates that it was probably manufactured by winding one or more filaments of glass around a metal rod. Industrial evidence for this technique of bead manufacture has been found at Meare Lake Village West (Henderson, 1981, 57, Fig. 44c) with comparable annular examples of beads with projecting filaments manufactured in the same way from the East village (Henderson, in press *a*). Unstratified.

The Main Features of the Chemical Analysis

All the glass discussed here was analysed using x-ray fluorescence² and falls into the chemical composition typical of Iron Age British and European glasses. The Castle Dore glass is either of a soda-lime-silica or lead oxide-soda-lime-silica composition. Within these chemical categories however, there are interesting chemical variations which can be attributed to the area and period of production³, as well as the colour, opacity and transparency of the glass. The weight percent oxide components of the glass are given in Table 1.

Green glass (No 1)

The green glass which forms most of No 1 is coloured by 0.84% iron oxide (expressed conventionally as Fe₂O₃) and the glass is unusually free of any other potential colorants. Evidently raw materials were used which were free of 'impurities' which could modify the green colour. The glass may indeed have been intentionally coloured green through selection of primary raw materials, such as sand, which were known to be relatively 'clean'. Sand, however, is one of several possible sources of iron which can modify the final glass colour (Henderson, 1985). The lack of

manganese oxide in the glass tentatively suggests that it is of pre 2nd–1st century bc date since manganese oxide is often found at levels above 0.3% in green glasses of 2nd–1st century bc and later date. This is particularly true of the large amount of green ‘bottle glass’ from Roman Britain, but there are exceptions to this compositional trend amongst the restricted number of British Iron Age green glasses. The unusually low content of manganese in some of the Hunsbury, Northamptonshire green ring-beads (Henderson, 1982; Dryden, 1885, 59, Pl IV; Fell, 1937, Fig 3), which are probably of late Iron Age date is an example of this and also illustrates another aspect of the technology of Iron Age green glasses. The colours of the Hunsbury glasses, which contain variable amounts of manganese and iron, vary from olive green to ‘bottle’ green and underline the importance of the furnace atmosphere in determining the final colour (Newton, 1978 and 1985).

Blue glasses (Nos 4, 5 and 6)

All the blue glasses are of a soda-lime-silica composition with the blue colour definitely caused by cobalt in only one bead (No 6). The level of cobalt oxide detected in this bead (0.21%) has also been found in cobalt blue glasses from Wetwang Slack, North Humberside of 4th–3rd century bc date (Henderson, forthcoming, b). The other two blue beads analysed (Nos 4 and 5) were coloured by cupric oxide and iron oxide, possibly with a contribution from the trace of cobalt detected. Guido (1978, 70) notes that sky blue beads (such as Nos 4 and 5) are relatively unusual in Iron Age contexts and become increasingly more common after the Roman invasion. The lack of manganese detected in the cobalt blue bead (No 6) suggests that the cobalt mineral involved in its coloration might have been arsenical (however see Henderson, 1985).

Yellow glasses (Nos 1 and 3)

The yellow glass which forms part of No 1 contains an unusually high content of lead oxide (42.14%) for a glass of its age and colour. Indeed, it is apparently the highest lead oxide content yet recorded for British Iron Age opaque yellow glass (Henderson, 1982). The 2.5% antimony detected probably forms a complex in the glass of lead antimonate which produces the opacity. The high iron oxide (3.5%) and lead oxide contents relate well to the established positive correlation between them in the opaque yellow glass from Meare (Henderson and Warren, 1981, Fig 4) and other opaque yellow Iron Age glasses (Henderson, 1982, Fig 25).

The chemical composition of the opaque yellow annular bead fragment (No 3) is lead oxide-soda-lime-silica, although its lead oxide content (34.31%) is slightly high for typical Meare products. The trace of copper oxide and the level of iron oxide, in combination with the antimony used (probably as crystals of $Pb_2Sb_2O_7$), give the glass its yellow-orange colour.

Archaeological Implications

The glass from Castle Dore was unstratified apart from Nos 1 and 4 (above) which can be assigned to phase I (probably 4th–3rd centuries bc) according to the revised dating scheme of Quinnell and Harris (this volume). The lack of contexts for four of the artefacts is unfortunate because the archaeologically and compositionally more diagnostic types (the armlet and opaque yellow bead) would have helped to date archaeological features or layers had they been securely stratified.

The yellow and green lump of glass (No 1) is particularly interesting. The opaque yellow glass which forms one side of the lump is of a composition which suggests a

pre-2nd century bc date for its manufacture. This is based on the antimony content of the yellow glass and negligible manganese content in both glass colours. If it was of a later Iron Age date, manganese would be expected to be detected in the opaque yellow glass (Henderson and Warren, 1983). Since the yellow glass in No 1 is similar to, but quantitatively different from, the Meare glass it is probable that it was not produced at the Meare workshop. At Meare there is now comprehensive evidence for a compositionally well-defined opaque yellow glass being worked during the Iron Age (Henderson, 1981, 1982). However, the dating of the Meare black earth which produced evidence for glass-working (Orme *et al*, 1981, 38) is not entirely secure since it was a deposit which was disturbed by animals. A further qualification is that the small area of the West village which the Somerset Levels team has dated radiometrically may not be representative of the whole West village and probably not the East village. Having said this, the diagnostic composition of the opaque yellow Iron Age glass, and particularly of the opaque yellow glass worked at Meare, has been found in reliable 3rd—2nd century bc contexts on other sites and this definitely suggests the existence of at least one phase of glass-working at Meare at this time. Evidence for glass-working in prehistoric Europe is unusual and that from Meare is the firmest evidence we have from Britain.

The opaque yellow glass which forms part of the lump from Castle Dore (No 1) was probably imported since it differs from the chemical composition of the Meare opaque yellow glass, and for that matter from other analyses of British opaque yellow glasses of the middle and late Iron Age (Henderson, 1982). It is possible that this broken lump was in fact intended to be broken up further and melted down in order to manufacture beads at Castle Dore or elsewhere. Recently raw glass of 1st century bc date has been excavated from Hengistbury Head together with armlet fragments (Henderson, forthcoming, *a*). At present there is no direct industrial evidence that glass was worked at Hengistbury Head, though this remains a possibility. A likely additional interpretation is that Hengistbury acted as a redistribution centre for glass to other sites where glass-working took place. So it is possible that the green and yellow lump from Castle Dore was also intended for redistribution from the site for the purpose of glass-working.

Rather than being a continental import the opaque yellow annular bead fragment (No 3) is not only morphologically typical of the examples from Meare, Somerset (Guido, 1978, 73 and 179) but also has a chemical composition which is close to the examples analysed from Meare. It has, in fact, been possible to define possible production batches of these annular beads at Meare (Henderson, in press, *a*) first detected in separate groups of beads found in different contexts at Meare East Village. The beads in each 'batch' have closely similar dimensions (including the central hole) together with homogeneity in the chemical composition of the glass used. In the absence of direct industrial evidence this strongly argues that they were manufactured at the site of Meare. The opaque yellow annular Castle Dore bead was therefore probably made at Meare.

Although it is possible to chemically characterise Meare (and therefore 'non-Meare') opaque yellow glass, one complicating factor is that there is definite evidence for Meare glass having had a long use-life. Examples of 'late' opaque yellow glass beads with Meare compositions come from Dun Mor Vaul, Tiree (Mackie, 1974, 147) of mainly 2nd—3rd century AD dates, and Lochspouts Crannog, Strathclyde (McAlistair, 1882, 15, Fig. 16) which produced Roman pottery (the data for these beads comes from Henderson, 1982). It is of course significant that these examples

are from sites which are much further away from Meare than is Castle Dore. With no archaeological context or independent date for the Castle Dore yellow annular bead it is difficult to know when it was used and deposited, but a 3rd—2nd century bc date remains a possibility.

Although one blue bead (No 4) is datable to c. 4th—3rd century bc by context, the other, unstratified, examples cannot be independently dated by either their date of production, their chemical composition or according to their typology. Annular and globular blue beads continue in use, and are probably manufactured through the Iron Age and into the Roman centuries in Britain (see Guido, 1978). Considering the variation in morphology within both Guido's groups 6 and 7, which she considers to be culturally undiagnostic in any case (Guido, 1978, vi—vii), we certainly cannot argue that these unstratified blue beads have any dating value.

In conclusion it is satisfying to be able to point to the archaeological and chemical evidence which suggests that some of the Castle Dore glass was imported from the continent and over the shorter distance from Meare, Somerset.

Notes

1. An opaque turquoise fragment of a glass bead illustrated by Radford (1951, Fig. 8, No 7) was unavailable to the author for study, though it was when Guido (1978) drew up her schedules.
2. The full conditions in which the x.r.f. analyses took place are described in Henderson and Warren, 1981, and the results incorporated in a Ph.D. thesis (Henderson, 1982).
3. The chemical analysis of glass armlets from Britain will be discussed at length in a forthcoming paper (Crew and Henderson).

Acknowledgements

The author is grateful to the S.E.R.C. who provided a studentship during the period when this research was carried out (1977—1982).

Oxford

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Review

CHARLES THOMAS. *Exploration of a Drowned Landscape: Archaeology and History of the Isles of Scilly.* Batsford, London, 1985. 320pp, 131 illustrations. £19.95.

Do not be misled by the title — either way, depending on your reading tastes — into thinking that this book is another romanticised, slightly gooey evocation of the clichés of Scilly. It is a good read, certainly, and it is well-illustrated from the dust-jacket onwards; but let there be no mistaking the fact that Charles Thomas has produced a highly original and major work of scholarship. It is founded on a life-time of persistent and percipient research; and his synthesis is masterly and truly interdisciplinary. The result is both a classic of local history and a major study with implications for many fields of enquiry into the past and present of the British Isles, Ireland, Brittany and the waters between.

Since, obviously, I find the book a considerable and enjoyable accomplishment, I would emphasize my interest which I would have declared anyway. I know the Isles of Scilly quite well, have shared (as have many others, gracefully acknowledged) in some of the Thomas fieldwork, and have contributed the air photographic illustrations to the book; my view cannot therefore be entirely impersonal. Nevertheless, while any reader is now alert to bias, my review can still attempt a certain detachment. Indeed, the danger is of bias *against* the book precisely because of my interest, for envy as well as admiration of a colleague's success could be an understandable reaction to the achievement represented by *Exploration of a Drowned Landscape*.

That title is the key to the main thesis, one on which several other exploratory themes in the book depend. Essentially, Thomas argues that the present main islands of St Mary's, St Martin's, Tresco, Bryher and Samson, together with the Eastern Isles, were formerly one island, not only in

a remote antiquity but also right up to the time of the Norman kings; and that a submergence, complete only in the sense of creating the existing islands, saw that single island fragment into an archipelago by early Tudor times. The process, of course, continues: Scilly is still sinking but, shore-line property-owners will be relieved to know, only at an average rate of about 10 inches (25 cms) per century. Having explained and, to my mind satisfactorily (bias?) demonstrated the thesis, Professor Thomas then goes on to reconstruct the prehistory and history of the Isles as if his 'model' were 'true'. One can but observe that it 'works'.

Among the many elements of the pre-literate, oral and documented evidence involved in the Thomas overview, let me select but four by way of illustration. The formerly 'mysterious' hedges observed in numerous places in the intertidal zones and below even low-water mark become readily explicable as fragments of a once-extensive man-made landscape on the *terra firma* of a plain. The plain was characterised by fields, tracks, settlements and cemeteries disposed, as it were, across the shallow depressed central area of a saucer rimmed by the higher ground with its localised peaks, now the main islands. They currently bear the visible archaeology of megalithic tombs and settlements, as on Samson, pricking the skylines visible to a tourist in a launch today as they did to the eyes of a Bronze Age ploughman looking up from the same spot three thousand years ago. The field archaeology of the several islands, then, so meticulously recorded over the two centuries from Borlase to Vivien Russell, Paul Ashbee and the 1970s surveyors of the Ordnance Survey, is not separately insular in origin but rather consists of the relatively recently sea-divided parts of a single, insular entity of the second and first millennia BC. An elegant model indeed, and one which Thomas explores in some detail in chapters 3–5. Furthermore, it is a model which can stand for prehistoric times regardless of the period of submergence.

That such was a medieval occurrence is demonstrated in chapter 2. The evidence, however, is of a different kind and later. The place-names of Scilly are very much the author's special, single-handed study on which we are promised a full, separate publication. Here they are used to convincing, cartographic effect, supported by much multi-lingual etymological erudition, to show the encroachment of the sea between the 12th and 16th centuries AD upon the land-mass of *Ennor*, the 12th century name, variously spelt, for the single, main island then still extant.

The argument for the dating of the submergence melds the evidence of place-names and topography. My third illustration of the use of varied sources by our polymath author invokes the four main types used in the previous two: archaeology and sea-level changes from marine data as well as place-names and topography. This third illustration goes further too in skilfully employing non-existent archaeological and topographic evidence; evidence, it should hastily be added, that can reasonably be argued to have once existed. It is, nevertheless, a chain with circumstantial links which leads to what many will find the most exciting, controversial or perhaps least convincing of the book's proposals. It is that a shrine, or *Vestaeum*, overlooked a lost (but reconstructable) harbour in Roman times immediately north of what are now the Eastern Isles. Furthermore, so it is argued, it was visible from Land's End, and was dedicated to a native goddess *Sil-*, possibly *Sulis*, from whom the very name Scilly is itself derived. Indeed, the Roman name of the original main island can be reconstructed as *Sil(l)ina*.

These three examples of innovative research clearly have scholarly implications beyond the Isles. The fourth is primarily of local interest but also provides a model, this time in method. Chapter 9, 'Ruined Hearths', tells the story of Samson, my favourite island. It is a fascinating story of a world-in-miniature, a microcosm isolated within isolation, well if confusingly documented in the 18th and 19th centuries, and here sensitively and sensibly reconstructed. It is beautifully written too, and Charles Thomas is not the only writer to be affected by the magic of the place — I use the phrase advisedly. Its scientific potential, already part-recognised by various protective designations, is not in doubt; but Samson is more than a scientific resource, more than two hills with a stirring local history already known in outline, more even than a place of remote beauty. 'Here, virtually frozen since 1855, is the setting of a 4000-year interaction between man, the animal and vegetable kingdoms, the rocks and the land, and the steadily encroaching sea . . . that central mystery, the almost (but not wholly) irrecoverable story of how men not only survived but occasionally prospered in these remote Isles, lies concealed throughout ancient Scilly. Most especially it may lie here on Samson' (p 262).

The literature of Scilly is as boulder-strewn as Samson's South Hill and a lot of it is much less pleasurable. *Exploration of a Drowned Landscape* is certainly a landmark, a scholarly *Vestaeum* on and for the Isles. It beckons authoritatively to the mainland of their value and sends out a signal of great themes from little Atlantic islands, perhaps not waving but still drowning.

P.J. FOWLER

Enclosures in the Launceston Area

F.M. GRIFFITH

Recent aerial reconnaissance by the writer, predominantly in Devon, has identified numerous new enclosure sites as cropmarks. A number of these in the Launceston area are discussed, and two Cornish examples are illustrated. The potential for further work in the area is outlined.

In 1983 the writer began a programme of archaeological aerial reconnaissance in Devon, and since then it has become apparent that the potential for the identification of archaeological sites in the form of cropmarks in the South-West had previously been under-estimated. In a region where permanent pasture is limited in extent off the moors, aerial reconnaissance and fieldwalking offer the principal methods of location for sites whose above-ground remains have been destroyed by cultivation, as well as the scope to amplify information on surviving upstanding sites (cf Rose and Johnson, 1983). The severe drought that affected the west of Britain in 1984 provided an exceptional opportunity for the identification of unknown sites in the more 'difficult' soils of the region (Griffith, 1984) and this note outlines one aspect of the results then obtained.

For 'administrative' reasons the writer's aerial reconnaissance has chiefly been confined to Devon, but some overlap into adjacent counties is of course desirable

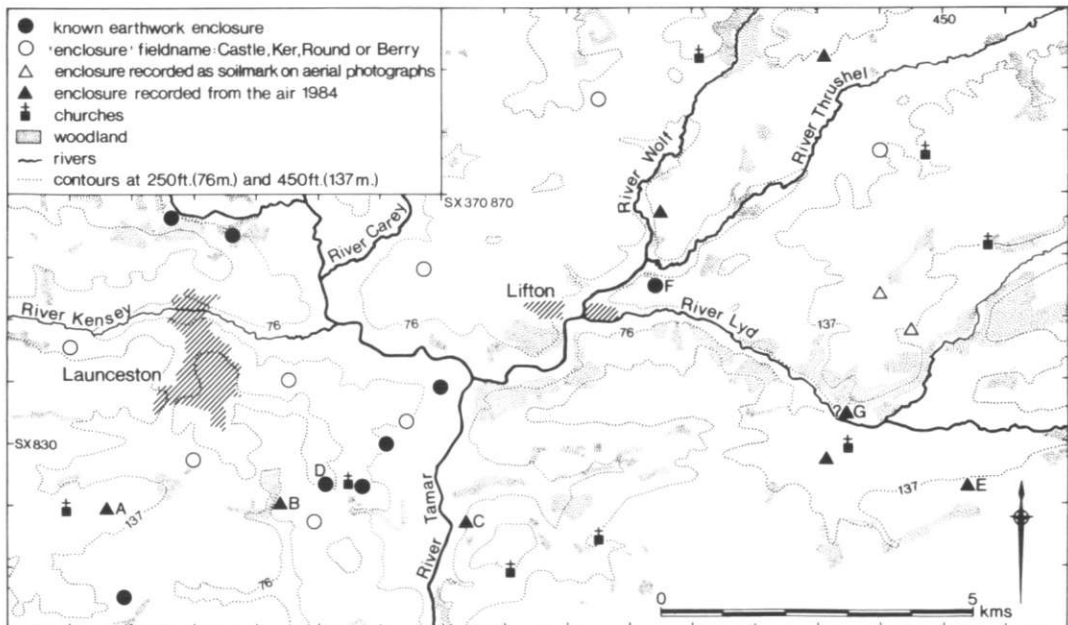


Fig. 1

Known and postulated enclosures in the Launceston area. Details of sites shown here, and aerial photographs where relevant, are available in the Cornwall or Devon Sites and Monuments Registers.

and necessary to ensure complete coverage. The Tamar Valley is best examined, for example, as a single unit, and in both 1984 and 1985 this area has been one of the objectives of the survey. Results in the lower stretches of the valley have been very

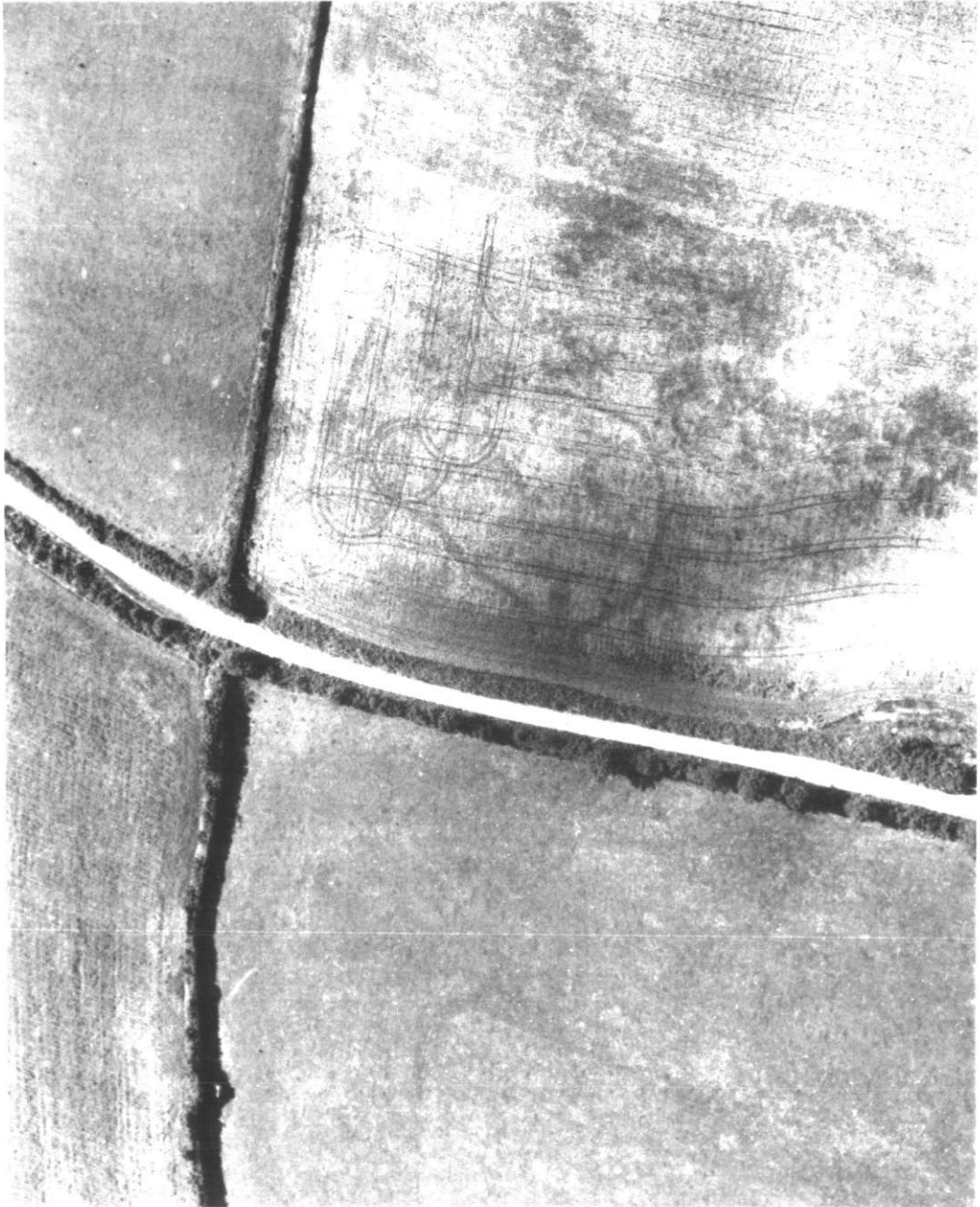


Fig. 2
Enclosure at South Petherwin, SX 316818, from the east. Photograph DAP/CH11 (16 July 1984)
by F.M. Griffith. (Copyright English Heritage).

limited, and so far the survey has signally failed to locate *Tamara* (Rivet and Smith, 1979, 464–5; Pearce, 1981, 149). In the Launceston area, however, a number of enclosure sites were identified, and some of these are summarised in Fig. 1. In this area the river valley broadens out, while immediately to the south of the area shown the summits of the steep sides of the winding valley are occupied by a series of overtly defensive enclosures, hillforts and promontory forts on both the Devon and Cornwall sides. Most of these survive in earthwork form, being protected by the steepness of the ground and — under past conservative methods of management — the use of the land for forestry.

Within the area of Fig. 1, on the other hand, no such sites are known. The lie of the land may reduce the defensive possibilities of the valley tops, but the cultivation regime is likely also to have been more destructive, so direct comparisons between grid squares SX 37 and SX 38 are not possible. An irregular D-shaped enclosure with a possible downslope outwork observed as a cropmark in 1984 on the Devon side at SX 374817 ('C' on Fig. 1) lies just below the summit of a fairly steep west-facing slope and this appears to be comparable with the southern sites, but the commoner location of enclosures in the area of Fig. 1 is a gentle hillslope siting.

Two newly identified Cornish enclosures are illustrated here. Fig. 2 shows a single-ditched curvilinear enclosure whose overall dimensions are approximately 36 m by 38 m. There is some suggestion of a short additional length of ditch outside the enclosure to the west. The site lies at SX 316818, part way down a gentle south-facing slope 600 m east of South Petherwin at 550 ft OD ('A' on Fig. 1). Fig. 3 shows a D-shaped enclosure approximately 35 m by 30 m with an entrance gap in the east (straight) side. The site lies on flattish ground at 325 ft OD at SX 345820, 1 km west of Lawhitton ('B' on Fig. 1). (Dimensions for both enclosures are given as indications only). Neither of these enclosures is defensively sited, and neither appears to represent as substantial a structure as the classic hillslope enclosure at Cal Hill, Lawhitton, SX 351823 ('D' on Fig. 1), which is still (1985) just visible as an earthwork in pasture.

In contrast with the defensive sites to the south, for which a later prehistoric date can reasonably be suggested, it is not possible on the basis of available information to give any indication of date to most of the enclosures shown on Fig. 1. For some, such as the Cal Hill earthwork (above) and perhaps the newly recognised double-ditched complex enclosure at Liddaton (SX 454823 — 'E' on Fig. 1) a later prehistoric date seems most likely, while others of the sites can probably be assigned to the medieval period — for example, the pillow-shaped earthwork at Castle Farm, Stowford ('F' on Fig. 1), which has been suggested by Silvester and Higham (Silvester, 1980, 65) to be a medieval domestic site, possibly moated. Perusal of Silvester's (1980) paper will quickly demonstrate the inadvisability of attempting to date enclosures of this type without fieldwork, and Fig. 1 shows all sites that can be termed 'enclosures' without distinction. (The interpretation of the cropmark at SX 434834 — 'G' — as an enclosure is open to doubt: it may be a recent cultivation-generated feature.) The problem of dating enclosure sites in this area is compounded by the absence of any enclosure-type sites which have been subjected to excavation of any reasonable internal area at a distance nearer than Trevinnick (Fox and Ravenhill, 1969) to the west, and Enclosure 15, Shaugh Moor (Wainwright and Smith, 1980) to the east. (For a much more extensive discussion of the chronological and morphological aspects of Cornish enclosure sites the reader is referred to the excellent paper by Johnson and Rose (1982), where all Cornish sites then known are illustrated.)

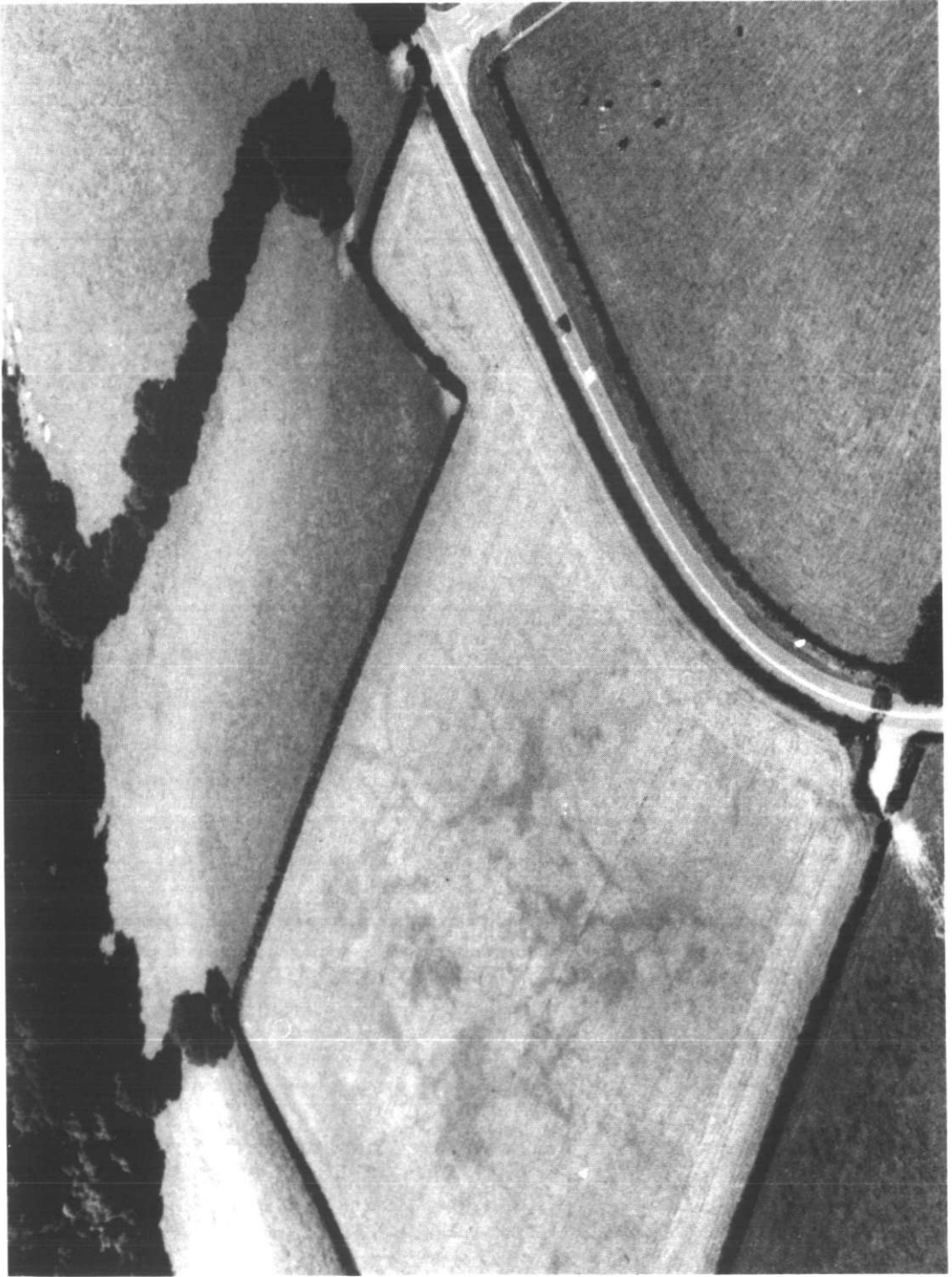


Fig. 3
Enclosure at Lawhitton, SX 345820, from the south. Photograph DAP/CH13 (16 July 1984) by F.M. Griffith. (Copyright English Heritage).

Fig. 1 shows the enclosures discovered in 1984, those previously known, and the location of possible enclosure-type sites suggested by fieldnames or placenames (*ker* and *castle* in Cornwall, *castle*, *bury* or *berry* in Devon, but omitting 'Round field' names as ambiguous). Information on the latter two categories has been derived entirely from the Devon and Cornwall Sites and Monuments Registers and may not include all relevant fieldnames. I should like to thank my CCRA counterparts for their help. The enclosures at SX 445848 and SX 440854 (open triangles on Fig. 1) are not upstanding sites, but were identified by R.J. Silvester on April 1947 RAF air photographs as soilmarks. In view of the extremely limited amount of aerial survey that has taken place in South-West England (cf Griffith, 1983, 67; Rose and Johnson, 1983, 99) and in this area in particular — all the 1984 sites shown on Fig. 1 are the result of one sortie — it appears to the writer that the distribution of enclosures in Fig. 1, relatively dense though it may appear, can confidently be described as even more partial and random than can most distribution maps.

On the other hand, results in 1984 do suggest that over a long period of time it will be possible to produce a picture approximating slightly more closely to the past distribution of enclosures. One problem in analysing the results obtained in 1984, which must by any standards be regarded as climatically exceptional (Griffith, 1984) is that since no survey of comparable intensity had been carried out in the past, the phenomenology of the cropmark-production of the different soils cannot be directly examined. Three of the new enclosures shown in Fig. 1 ('A' at SX 316818, 'C' at SX 374817, and 'E' at SX 454823) are located on intrusive igneous rocks — diabase and proterobase — while the remainder are found overlying the shales and grits of the Culm Measures (IGS, 1977). All except 'C' (on the closely related Manod association) lie on brown-earth soils of the Denbigh 1 and 2 or Neath associations (Soil Survey, 1983). The water-retentiveness of these soils makes them relatively unsuited to arable applications (Findlay *et al*, 1984, 147 *ff*), but the quality of the pasture in this area is described by Marshall (1796, 52) thus: 'At Milton Abbots is a plot of the finest grassland in the Kingdom! Grazing ground of a very superior quality. The Midland Counties cannot shew better. Also about Lamerton and Tavistock, is some good grazing land.' To this day the predominant land-use here is pasture of various degrees of permanence. It takes a genuine drought (Wilson, 1982, 60) to produce 'cropmarks' in grass, particularly in soils with good water retention, and conversely the scarcity of cereal crops in this area reduces the chances of frequent cropmarks, so the appearance of the new sites seen in 1984 must give us heart for further survey in the future. (It may be recorded here that even in the relatively unfavourable climatic circumstances of 1985, a single ring ditch was recorded as a cropmark in grass by the writer within the study area at SX 359822.)

Apart from the St Stephens parish checklist (King and Sheppard, 1973), the area shown in Fig. 1 has probably received as little archaeological field examination as any 149 km² in South West England, but the relative intensity of settlement hinted at in the map is perhaps in retrospect not wholly astonishing. The importance of the crossing point of the Tamar here (wherever it may have been in Roman times — cf Margary, 1967, 121 and Lambert, 1973, 136) must always have acted as a focus for settlement. I am also grateful to Ann Preston-Jones for the observation that in the Launceston area surviving Cornish place-names are more abundant than anywhere else in East Cornwall (see for example map in Padel, 1985, 352), suggesting that the area was relatively well-occupied prior to the arrival of the Anglo-Saxons.

The results of the 1984 aerial survey indicate that the upper Tamar area will amply repay further study. One element that is sadly lacking at present is any modern work on the place-names on the Devon side of the border to complement Padel's Cornish survey. Aerial observation too — from both sides of the Tamar — must obviously play an important part in this, particularly in drought years, but the essential feature for the development of our understanding of the area must be fieldwork, both for the recovery of artefactual material to give some chronological framework, no matter how coarse, to the random material presented in Fig. 1, and to permit the identification of the other settlement sites that one is now rather more justified in postulating. This will be neither a spectacular nor a swift task, given the limited ploughing in the area and the problems of recovery of pottery, in particular, in our region, but it will be essential to the long term construction of a more balanced picture. Enclosures are far from being the whole story — as Barratt (1983) has written 'The history of a defensive perimeter does not mirror the history of a site's occupation' — but aerial reconnaissance and fieldwork in conjunction can patch together a shadow of what the plough has removed, even, as the 1984 results demonstrate, on the notoriously unhelpful Culm Measures.

Acknowledgements

The aerial survey project from which this note is derived has been substantially funded by my employer, Devon County Council, and HBMC, and I have also received generous assistance from Mrs C.A. Richards and Miss H. Smith. The work would not have been possible without the continuing help of my pilot, Mr W.W. Dougan. I would like to thank CCRA in Truro for their help, and in particular Ann Preston-Jones for several helpful discussions. Fig. 1 was drawn by Sandy Morris of Exeter Museums Archaeological Field Unit with the help of a grant from the Devonshire Association, whose support for the project is gratefully acknowledged.

Sites and Monuments Register, Exeter

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CORNISH ARCHAEOLOGY No. 24 (1985)

A Bronze Age Urn from Craig-a-bella, Poldhu, Gunwalloe

STEPHEN HARTGROVES *and* DAPHNE HARRIS

Excavation in the roadside bank near Poldhu Cove produced the lower half of a Bronze Age urn and a sherd decorated with small, circular indentations. Cremated bone was found in the urn.

Introduction

Poldhu Cove is on the west coast of the Lizard peninsula, in Gunwalloe parish (Fig. 1). It lies on the Gramscatho beds, just north of the great fault which terminates the characteristic geology of the Lizard. The coast road running northwards from the cove was constructed early in this century, and was levelled into the rising ground, cutting into the bedrock, so that there is a bank on the landward side rising about one metre above the road surface. At one point (SW 6645 2005) on this bank, Miss Barbara Jupp noticed a sherd of decorated pottery lying on the surface, and also an edge of what looked like pottery embedded in the soil a short distance away. She reported this to the Cornwall Committee for Rescue Archaeology, whose Sites and Monuments officer visited the site and was able to confirm Miss Jupp's suspicion that the pottery was Bronze Age in origin. It was decided that appropriate action

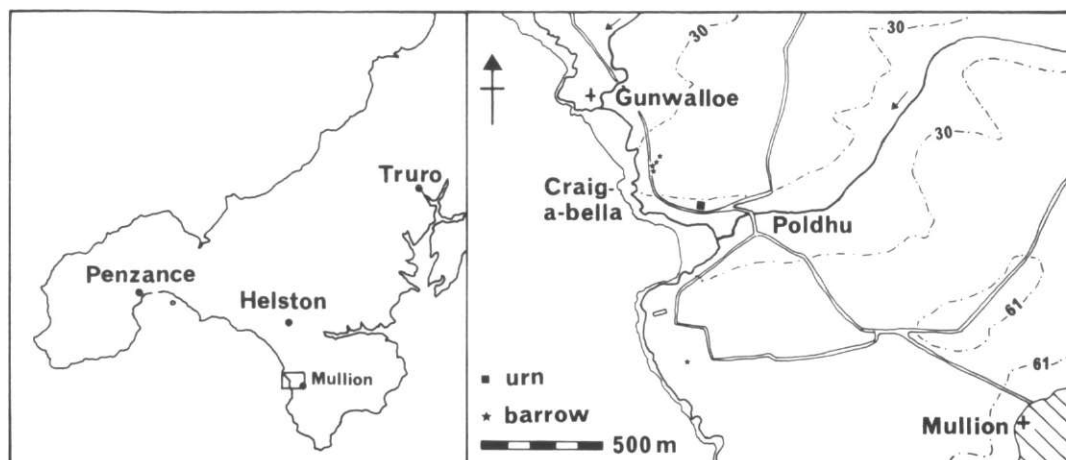


Fig. 1
Map to show location of the Craig-a-bella excavation.

was called for and in July 1984, with the permission of the National Trust who own the land at Craig-a-bella, a one-day excavation was carried out by a small group from CCRA and the Cornwall Archaeological Society.

The Excavation

An area one metre by 0.80 m was examined. Before much soil had been removed, the edge of pottery was found to extend to a full circle of nearly 0.3 m diameter, and it evidently formed the highest part of a large vessel. When the pot was fully excavated, it proved to be the lower half of an urn, the top half having presumably been sliced off when the road was built. The urn had been set in a slight hollow in the bedrock, artificially cut to receive it. The pit in which it stood was small, only very slightly larger than the urn itself, and there was no sign of any covering structure or mound. As the truncated vessel was open and unprotected, it was full of a soil similar to that in which it was set, and this contained a quantity of cremated bone, which was concentrated in the bottom 20 mm of the urn. A small quantity of cremated bone was also found in the earth around the outside of the urn. Although keeping its original shape, the urn was broken, and penetrated by roots, which had insinuated themselves through the cracks and even through the pottery itself, so that the vessel had to be lifted in separate pieces.

The Urn

The part of the vessel which survives is undecorated (Fig. 2). The fabric is coarse, though any inclusions are small. The walls of the pot are just over 10 mm thick, but the base is 30 mm deep. The urn as excavated survived to a height of some 0.20 m; if it was the traditional biconical shape, it might have stood something like 0.40 m high. There is no sign of any handle.

The single sherd found about two metres away could have come from the now vanished upper half of the urn. It is of the same fabric and colour, and decorated with two rows of round indentations, 4 mm in diameter, very regular in shape, made with a rounded point. One row seems to mark a slight carination. There could well be other decoration not seen on this one sherd.

The decoration on the single sherd is not a common one in the Cornish Bronze Age. There are however a few examples. A ribbon handled urn from Ballowal (Carn Gluze), Miss Patchett's C11, has two lines of similar round indentations, together with horizontal lines. An urn from Gwallon Down has two lines of holes over incised chevrons, and one from Tregaseal (St Just) has two rather irregular lines of holes with no other decoration; Miss Patchett puts both the latter into her Class G, of late Bronze Age date (Patchett, 1944).

Petrological Analysis by Dr D.F. Williams (*University of Southampton*)

The sherd analysed was a fairly hard, smoothish bodysherd about 12 mm thick, greyish brown to light brown (Munsell 10YR 5/2 – 7.5YR 6/4) outer surface and part core, and dark grey (10YR 4/1) to black inner surface and remainder of core. The fabric is coarse and in fracture contains many angular rock and mineral fragments. A thin section of the sherd was examined under the petrological microscope. This revealed frequent angular grains of altered plagioclase feldspar, brown amphibole, often in the form of fibrous aggregates, quartz, a little pyroxene, serpentine and some fragments of sandstone. With the exception of the inclusions of sandstone noted, the petrology of the above sherd closely resembles Peacock's (1969) description of the gabbroic clays of the Lizard peninsula. Poldhu Cove lies on Gramscatho beds close by to blown sand deposits just north of the Lizard Thrust, some 5 miles to the west of the outcrop of gabbro on the Lizard (Flett and Hill, 1912). In this particular case it seems quite possible that gabbroic clay may have been brought to the site and mixed with local materials (ie sandstone) in the manufacture of the vessel, suggesting a domestic mode of production.

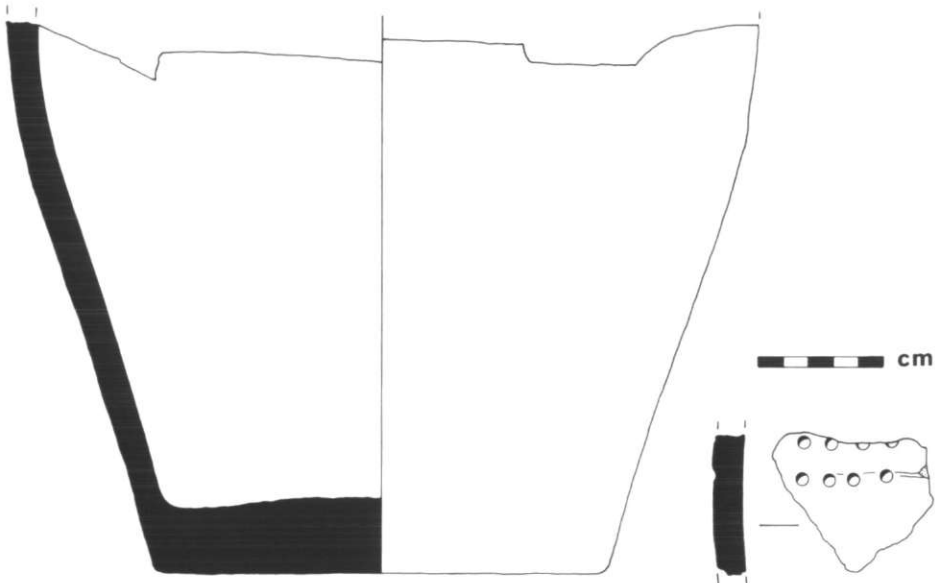


Fig. 2
The Craig-a-bella urn and the single decorated sherd.

The Cremation

The contents of the urn and the soil and bone fragments found in the hollow around the base of the urn were collected, and the bone was carefully separated out. The entire sample was sent to Miss Janet Henderson, of the Ancient Monuments Laboratory (HBMC), who reports:

‘A small sample of cremated human bone from this site was examined for information relating not only to the individual to whom the bones had belonged but also to cremation burial practice . . . The results that could be obtained were severely restricted by the size of the sample (a total weight of 344 g is very small; the average weight of a cremation has been quoted at 1.6 kg (Evans, 1963) and may be even higher). However it was possible to say that most of the fragments came from the long bones (eg humerus and femur) and that there was no evidence to suggest the presence of more than one individual. Several fragments of tooth roots were also identified. Further observations about the individual could not be made.

Sieving the sample (through 5.6 mm, 4 mm, 2 mm and 1 mm sieves) left most material in the 2 mm sieve and this, combined with an average fragment length of 20–30 mm, and the observation that all of the material was white in colour, would normally suggest that the cremation itself had been thorough in terms of degree of burning and break-up of the bones after cremation. However, as with the individual observations, the small size of the sample may have given a misleading picture and therefore any attempts to draw conclusions from these data must be treated with due caution . . .’ Miss Henderson’s full report is deposited at Truro museum and at the Cornwall Sites and Monuments Register.

Discussion

The Craig-a-bella urn is evidence of a rather unusual Bronze Age burial, in that the urn appears to have been inserted into the ground with no cist or structure connected with it, and as far as can be judged, no mound. If comparison with other known examples of the decoration on the single sherd is valid, the burial should date from late in the Bronze Age.

Acknowledgements

Warm thanks go to Miss Barbara Jupp who first noticed and reported the pottery, and to the National Trust who gave permission for the excavation. Helpful information came from Mr and Mrs Jupp of Craig-a-bella. The excavators were warmed by tea and coffee brought up to them by Mrs Olliff from the Poldhu Cove café. We are very grateful to Dr David Williams for examining the pottery fabric, and to Miss Janet Henderson for a report on the cremation.

Truro

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A Collection of Artefacts from Trevose Head

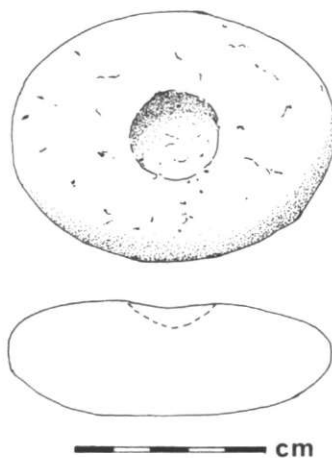
D. CAVE

The field from which the material was collected lies just south of the crest of Trevose Head (SW 853764). Most was found in or around a slight hollow in the land. The collection was made between December 1984 and March 1985.

The artefacts included a drilled pebble and an unpolished greenstone axe. Among the flint tools were a chisel arrowhead, a single barbed arrowhead, a roughout for a leaf-shaped arrowhead and thirty-four microliths.

Fig. 1 shows the drilled pebble which is of very fine-grained igneous rock. It is smooth with very slight pitting of the surface, due to the differential weathering of the mineral constituents, but there are no signs of wear. The hollow is central and regular, about 20 mm wide and 5 mm deep. There is no apparent reason why drilling was abandoned.

The size and shape of the pebble suggests either an unfinished macehead, a pebble-hammer or, in this particular context, a countersunk pebble like those from the Mesolithic layer at Gwithian (Palmer, 1977). The drilling is at too early a stage to identify the tool.



Acknowledgements

Thanks are due to Mr R. Penhallurick who identified the stones, to Mr N. Johnson and Mr S. Hartgroves who advised about the flints, and to Mrs M. Irwin who drew the drilled pebble.

Mevagissey

Reference

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A Bronze 'Ox-Hide' Ingot from Cornwall

NEIL BEAGRIE

Whilst diving off Looe Island (SX 257513) in Cornwall, Gifford Pound retrieved the bronze ingot illustrated here (Fig 1). It was a chance find with no obvious archaeological context or associated material. It measures a maximum of 220 mm on its long axis by 160 mm wide and 70 mm thick and weighs approximately 14 kg. It is 'ox-hide' shaped in plan with an upper face perhaps showing some signs of shrinkage after casting and slow cooling. The base is flat and its short sides vertical. The long sides slope slightly inwards and this was no doubt intended to ease extraction from a mould.

The ingot is covered with a dense green-white corrosion product, which Professor Tylecote has suggested is likely to have arisen after a long period in the sea — perhaps well over 500 years. An examination showed it was tin-bronze with a tin content of about 15%. It is finely porous, clearly a casting and has been slow-cooled (Tylecote, 1984).

The shape of the ingot and its sloping sides is one frequently adopted in large ingots for ease of handling and transportation. There are no immediate parallels for this remarkable find and clearly its dating is difficult without an archaeological context. It is reminiscent of the Bronze Age copper ingots of the Mediterranean but although roughly the same in terms of weight as these examples is much shorter and thicker. It could also be plausibly suggested that the 'astragalos' ingots referred to by Diodorus, possibly meaning 'knuckle-bone shaped', could admirably describe this ingot, although it must be stressed that what Diodorus meant by 'astragalos' is not entirely clear. The shape is also reminiscent of late Roman ingots of silver, although these are smaller and much lighter, as perhaps one should expect given the relative values of the different metals. An example from Kent now in the British Museum measures 120 mm long by 98 mm wide, but is only 7 mm thick and weighs c. 0.32 kg (Painter, 1972).

Parallels can also be drawn with a medieval tin ingot mould from the Upper Yealm Steps Blowing-House, recently published by the author in a discussion of the St Mawes Ingot (Beagrie, 1983). Sloping sides are a common feature of medieval ingot moulds surviving on Dartmoor and a few rare examples have slight 'ridges' in their bases. This feature is particularly marked in the Upper Yealm Steps mould and it would have produced a distinctive ingot with a 'H-shaped' plan to its underside. It should be stressed however that the ingot shape is a highly functional one and any parallels are more likely to indicate a similarity of purpose than a contemporary date. This suggests that, like the St Mawes example, the Looe Island ingot can only be dated by its other attributes. In the case of the St Mawes ingot, the considerable size and weight of the object suggested that a medieval date was most likely. The much smaller weight and size of the Looe Island ingot provide less conclusive evidence.

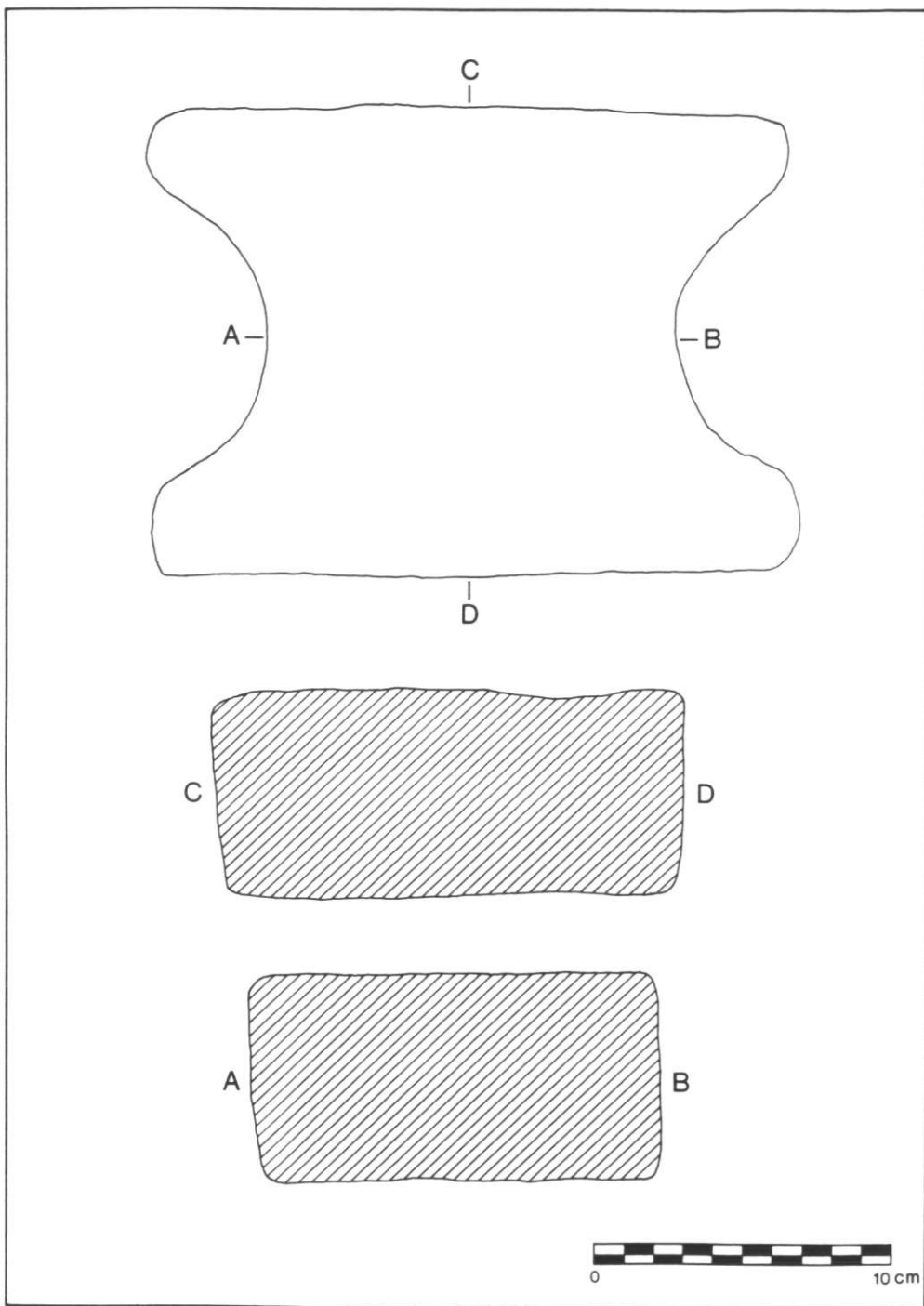


Fig. 1

Early ingots are unfortunately distributed unevenly both in time and space across Europe and the Mediterranean. What little evidence we have suggests that metal ingots circulating in Northern Europe in prehistory were of small size and weight, although examples similar to the Looe Island ingot circulated in the Mediterranean and could have been used elsewhere. The Looe Island ingot is certainly well within the known weight-range of Roman base metal ingots from Britain and similar ingot sizes occur in the Medieval Period. The composition of the ingot nevertheless is unusual, in that very few examples consist of an alloy. A few rare prehistoric and Roman parallels might suggest an early date and Professor Tylecote's comments on the thick corrosion and the time likely to be needed for this to develop may add further support to this argument.

The ingot itself could easily be from an early wreck as the exposed findspot would rapidly destroy most remains and disperse or bury any others. It is certainly an intriguing find and one can only hope that future discoveries will illuminate its date and context further.

Acknowledgements

I would like to thank Professor R.F. Tylecote for drawing my attention to this find and Gifford Pound for permission to examine it.

St Austell

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The Ships of the Veneti:- a fresh look at the Iron Age tin ships

CRAIG WEATHERHILL

The ships of the Veneti, the maritime Celtic tribe of southern Brittany, are an archaeological enigma. Julius Caesar and Strabo have given us tantalising literary glimpses of these vessels, but no remains have yet come to light. For the present, we have to make do with these, and with various visual clues from other quarters.

We know that these massive oaken vessels were expressly designed for oceanic conditions, and that the Veneti, the great sea-going merchants of north-west Europe during the Iron Age, regularly sailed to and from Britain. Their range of influence and commerce may have stretched from Portugal to the Straits of Dover, possibly including Ireland. We also know that a fleet of 220 such ships, including similar vessels from Britain, were destroyed by Caesar's fleet off the Gulf of Morbihan, on the southern coast of Brittany, in 56 BC.

To provide a reconstruction of a typical Venetic ship is not a simple task, but, taking various clues and hints into consideration, a reasonable attempt at this may be possible. At first sight, this seems to have little to do with the archaeology of Cornwall, but as Professor Charles Thomas has shown (Thomas, 1966), the ships of the Veneti were an important and integral part of Cornwall's past. Let us then consider the evidence, beginning with the only eye-witness account of these ships which survives: that of Julius Caesar himself (*De Bello Gallico* 3). Caesar begins with an account of the Veneti themselves:

The Veneti are the most powerful tribe on this coast. They have the largest fleet of ships in which they traffic with Britain; they excel the other tribes in the knowledge and experience of navigation; and as the coast lies exposed to the violence of the open sea, and has but few harbours — which the Veneti control — they compel nearly all who sail into those waters to pay toll . . .

. . . they had a strong fleet, while we had no ships available and were unacquainted with the shoals, harbours and islands of the coast on which we would have to fight; and sailing in a wide ocean was clearly a very different matter from sailing in a land-locked sea like the Mediterranean. Having resolved to fight, they fortified their strongholds, stocked them with corn from the fields, and assembled as many ships as possible on the coast of Venetia where it was generally thought that Caesar would open hostilities. They secured the alliance of various tribes in the neighbourhood, and of the Morini and Menapii, and summoned reinforcements from Britain which faces that part of Gaul.

This last statement is not without interest, for it may imply that Britain possessed such ships. The words 'which faces that part of Gaul' may intimate Dumnonia, and it is probable that Venetic settlers, along with their ships and cliff-castle techniques (Thomas, 1966) were not only resident in Dumnonia, but that their virtual monopoly in sea trading had placed them high in the hierarchical tree.

Caesar comments on the Venetic cliff-castles of Brittany, and of the way they were employed:

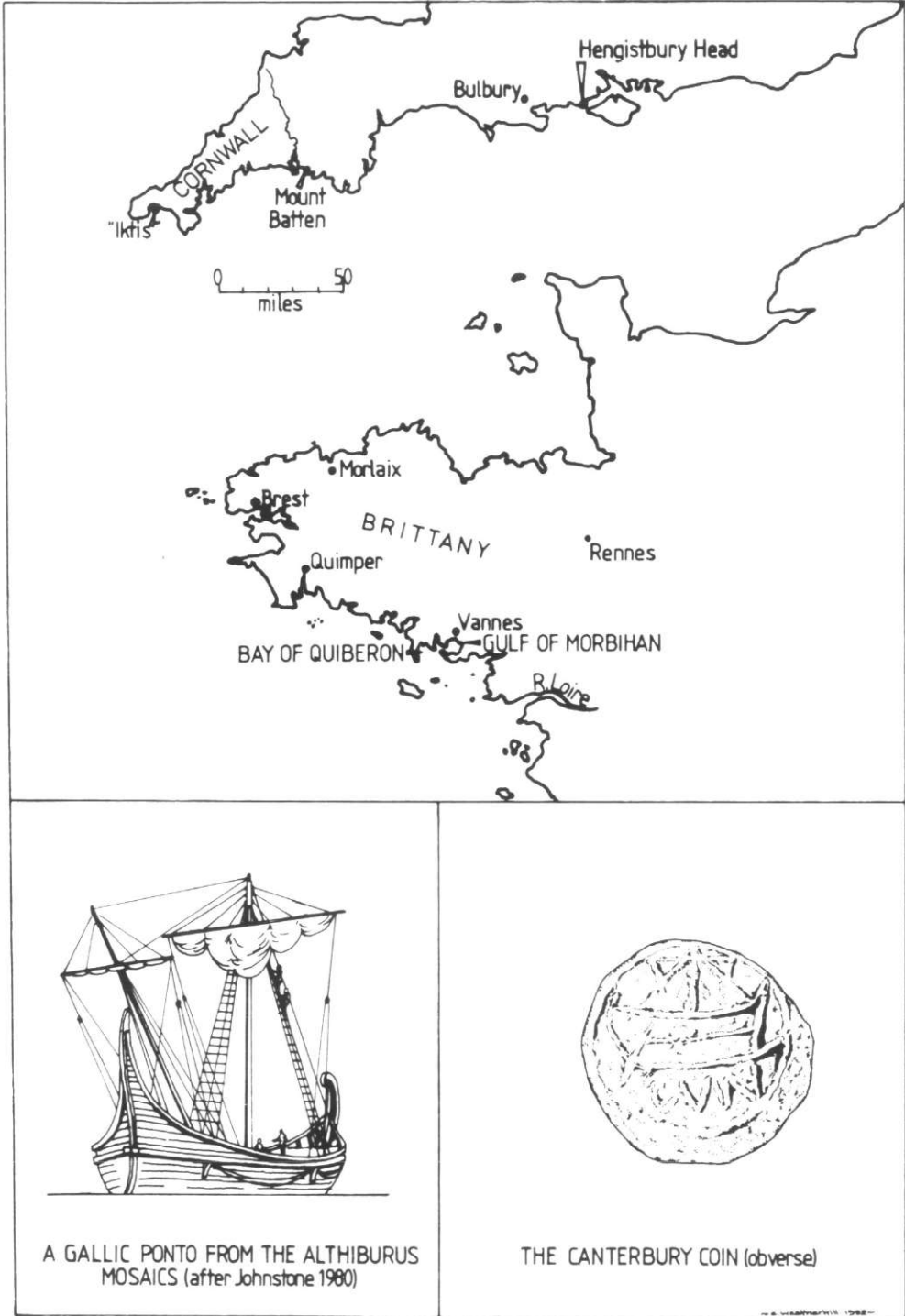


Fig. 1

Most of the Veneti's strongholds were so situated on the ends of spits and headlands that it was impossible to approach them by land when the tide rushed in from the open sea, which happens regularly every twelve hours; and they were also difficult to reach by sea, because at low water the ships would run aground on the shoals. For these reasons, the strongholds were hard to attack. Sometimes, the Romans made them untenable by building huge dykes, which both kept the sea away, and enabled the besiegers to get on a level with the top of the walls; but as soon as the defenders saw that their position was hopeless, they would bring up numbers of ships, of which they had an unlimited supply, transfer all their property to them, and retire to neighbouring strongholds equally well suited for defence. They found it easy to pursue these tactics during most of the summer, because our ships were weather-bound and sailing was very hazardous in that vast, open sea, where the tides were high and harbours almost non-existent.

Caesar then goes on to describe the ships themselves; a somewhat incomplete picture, but a tantalising one. However, it must be borne in mind that his main point was to illustrate the differences between the Celtic ships and his own. One can detect a note of astonishment in his words, and perhaps also some grudging admiration in his account of the naval battle of 56 BC, which is thought to have been fought off Port Navalo, at the mouth of the Gulf of Morbihan (Fig. 1):

The Gauls' own ships were built and rigged in a different manner from our own. They were made with much flatter bottoms, to help them ride shallow water caused by shoals or ebb tides. Exceptionally high bows and sterns fitted them for use in heavy seas and violent gales, and the hulls were made entirely of oak, to enable them to withstand any amount of shocks and rough usage. The cross-timbers, which consisted of beams a foot wide, were fastened with iron bolts as thick as a man's thumb. The anchors were secured with iron chains instead of ropes. They used sails made of raw hides or thin leather, either because they had no flax and were ignorant of its use, or, more probably, because they thought that ordinary sails would not stand the violent storms and squalls of the Atlantic and were not suitable for such heavy vessels. In meeting them, the only advantage our ships possessed was that they were faster and could be propelled by oars; in other respects, the enemy's were much better adapted for sailing such treacherous and stormy waters. We could not injure them by ramming because they were so solidly built, and their height made it difficult for us to reach them with missiles or board them with grappling irons. Moreover, when it began to blow hard and they were running before the wind, they weathered the storm more easily; they could bring to in shallow water with greater safety; and when left aground by the tide had nothing to fear from reefs or pointed rocks: whereas to our ships, all these risks were formidable.

After taking several strongholds, Caesar saw that all his labour was being wasted: capturing their strongholds did not prevent the enemy from escaping, and he was not in a position to cripple them. He decided, therefore, that he must wait for his fleet to be assembled and brought up. Directly it hove in sight, some two hundred and twenty enemy ships, perfectly equipped and ready for immediate action, sailed out of harbour and took up stations facing it. Neither its commander Brutus, nor the military tribunes and centurions in charge of the individual ships could decide what to do, or what tactics to adopt. They knew that no injury could be inflicted on the enemy by ramming, and when they tried erecting turrets they found that they were still overtopped by the foreigners' lofty sterns and were too low to make their missiles carry properly, while the enemy's fell with great force. One device, however, that our men had prepared, proved very useful — pointed hooks fixed into the ends of long poles, not unlike the grappling-hooks used in sieges. With these, the halyards were grasped and pulled taut, and then snapped by rowing hard away. This of course brought the yards down, and since the Gallic ships depended wholly on their sails and rigging, when stripped of these they were at once immobilised. After that it was a soldier's battle, in which the Romans easily proved superior, especially as it was fought under the eyes of Caesar and the whole army, so that any act of special bravery was bound to be noticed; all the cliffs and hills that commanded a near view of the sea were occupied by the troops. When the yards of an enemy ship were torn down in the manner described, two or three of ours would

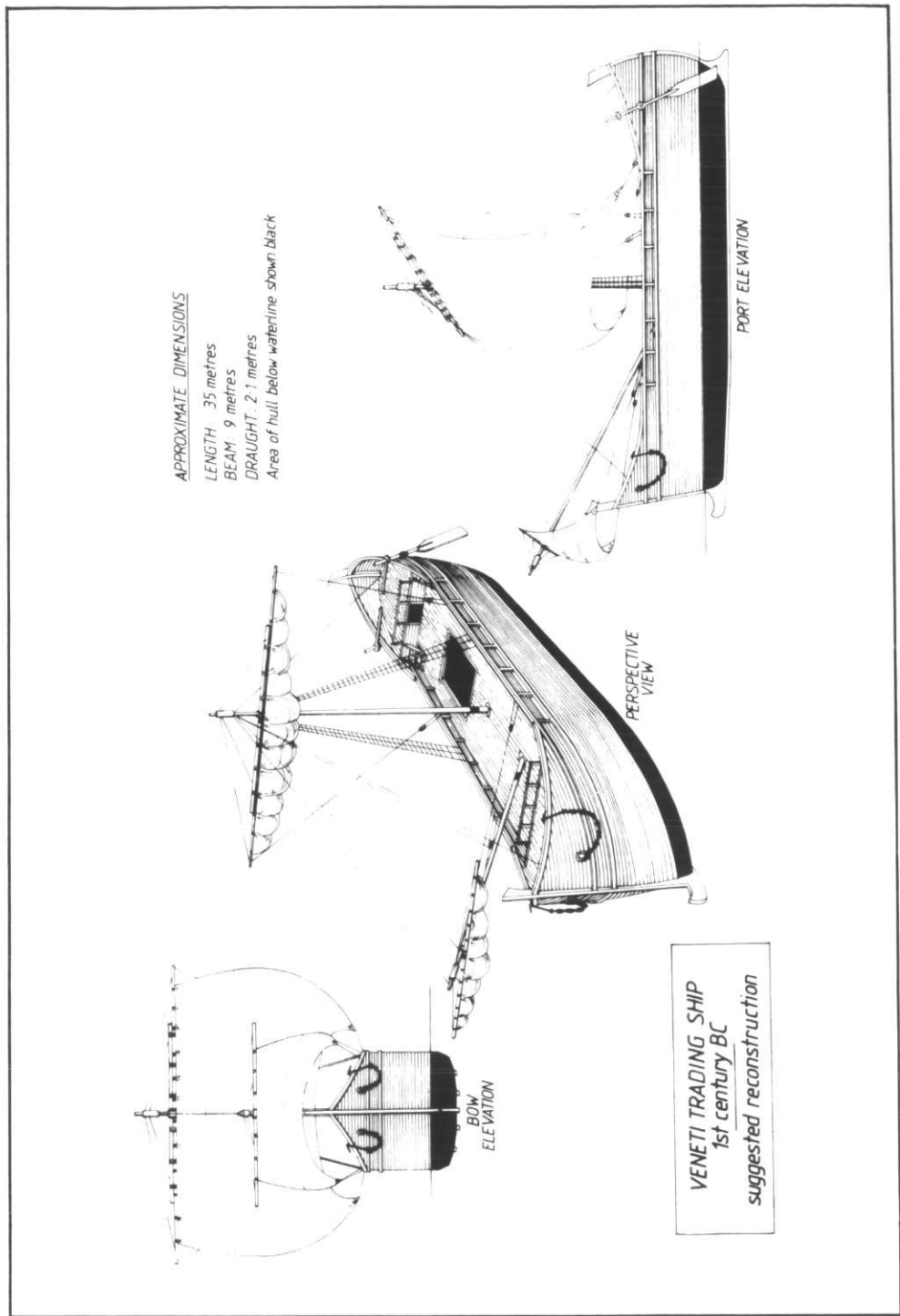


Fig. 2

get alongside, and the soldiers would make vigorous efforts to board it. When the natives saw what was happening, and after the loss of several of their ships could still find no answer to these tactics, they tried to escape by flight. They had already put their ships before the

wind, when suddenly, such a dead calm fell that they could not stir. Nothing could have been more fortunate for us. It enabled us to complete the victory by pursuing and capturing the vessels one after the other, and only a very few managed to make land when night came on after a battle that lasted from about ten o'clock in the morning until sunset.

This victory ended the war with the Veneti and all the other maritime tribes. For besides assembling all their men of military age, and indeed all the older men of any standing or reputation for good judgement, they had also concentrated every one of their ships; and now that all these were lost, the survivors had no refuge left and no means of defending their strongholds.

From these words, we can form a sketchy picture of large, heavy, oak-built ships, high-sided but shallow-draughted, and with extremely high bows and sterns. It cannot be assumed, as a number of people have, that they were flat-bottomed, keelless craft, such as, for example, the Zwammerdam boat 6. Caesar's words are 'much flatter bottoms (than our ships)'. They were rigged as most craft of the period were: a large, square sail carried on a hoistable yard on a more or less central mast; if this had differed from the usual practice, Caesar would certainly have commented on it. The planked hull was certainly carvel-built; Strabo (Geography IV, IV I) mentions that they were caulked with seaweed. Clinker-building is clearly a later development, and had the Venetic ships been constructed in this way, Caesar again would surely not have failed to remark on it.

Creston (1961) has considered the traditional fishing craft of the Morbihan, the *Sinagot*, which sadly virtually disappeared after 1925, as the direct, if miniature, descendant of the Venetic ships. He discusses the cross-timbers described by Caesar (the Latin word used is *transtra*), and wondered whether they were structural timbers or rowing benches. The latter, I believe, can be disregarded, as Caesar's account makes it clear in two places that the Veneti ships did not use rowers. However, Creston considered the structural cross-beam translation (?floor-timbers or ?deck-timbers) and studied the construction of the *Sinagot*, enlarging its timbers proportionally to match Caesar's foot-wide dimension. Other dimensions were reached by studying the proportions of other vessels, both of antiquity and of traditional lines.

He finally deduced that the ships of the Veneti may have been between 30 and 35 m in length, with a beam of 9 to 10 m; 1.8 to 2 m draught, and with gunwales perhaps 3 m above the waterline amidships. Perhaps the last figure is somewhat low considering the Romans' difficulties in coping with the height of these vessels. Even if Caesar had used his smallest type of warship, the *actuaris*, the height of the Venetic gunwales would have had to have been at least 4 m above the waterline. Creston's drawings seem to stray too close to the much later and sleeker designs of the Scandinavians, and, since his paper was published, much more evidence has come to light which may give us a closer approximation of the hull shape.

The iron anchors and chains that Caesar remarks on appear to be similar, if not identical, to the example found at the Bulbury hill fort near Poole harbour in 1881. This stockless, twin-fluked anchor, 1.44 m long, and with 6 m of large-linked chain attached, has always been thought to have been Venetic (Cunliffe, 1972).

The Blackfriars I ship, discovered in the Thames in 1958, displays a number of characteristics of Venetic design. This was a flattish-bottomed oak vessel, probably a Romano-British barge sunk accidentally with its cargo of Kentish building stone. Its floor timbers were an average of 300 mm wide — reminiscent of Caesar's words — and 230 mm thick, spaced at 0.5 to 0.8 m centres. One of these timbers, placed approximately 6 m from the bow, was 450 mm wide and contained a rectangular

mast-step. The vessel was carvel-built, 16.7 m long, with a beam of 6.7 m. A feature of the hull was a definite chine of between 30 and 35 degrees. The words of Caesar were again echoed by the long, thick, iron nails by which the planking was fastened to the floor timbers. Unfortunately, the original height of the vessel's sides could not be determined. The craft was keel-less, which pointed to its use as a river and estuary barge rather than a sea-going vessel. It was dated to the 2nd century AD, and despite the predominantly Roman finds it contained, it is of native British design and construction (Marsden 1976).

A further clue appears on the unique, early 1st century AD bronze coin of Cunobelin found at Canterbury (Muckleroy *et al* 1978). The obverse of this coin shows the starboard side of a bulky, high-sided ship, with a single mast and yard. Stays and a steering oar are also shown (Fig. 1). It apparently shows the keel, with a horizontal line midway up the side of the ship seeming to represent the waterline. The stem-post is straight, raking at an angle of 10 degrees from the vertical, and the gunwale angles sharply upward to the bow. The stern-post is curved.

Two features of this ship have aroused a great deal of interest. Firstly, the apparent keel-line continues forward of the stem-post, and curves slightly upward, forming a forefoot. If this is what is represented, it would hardly have been an offensive ram. The ship is clearly not a warship, but, like the Venetic ships it so closely matches in description, a merchantman: in this case, the forefoot is more likely to have been an aid in beaching the vessel. It would also protect the hull during this manoeuvre.

Caesar does not mention the existence of a forefoot on the Venetic ships, but as his own ships were equipped with rams he may not have considered them remarkable enough for comment. Creston, although he does not consider the possibility of a forefoot, postulates the presence of grounding keels on either side of the main keel. Although such are not shown on the coin ship, this is a sound argument.

The second intriguing feature of the coin ship is a short horizontal line drawn where the gunwale meets the stem-post. Muckleroy wonders whether this may be representative of the yard of an *artemon*, or steering sail; a feature not unknown in Roman times. On the other hand, he concedes that the *artemon* was invariably carried on an angled mast which carried well above, and forward of, the stem-post. However, this area of the coin is too restricted to adequately show an *artemon*, and the curious little line on the coin ship may be a mere representation of such a feature.

Yet another clue to the design of the Venetic ships comes from a mosaic in the fresco at Althiburus, Tunisia, which illustrates, and names, a number of Mediterranean vessels. One of these is the *ponto*, a Gaulish merchant ship which is immediately reminiscent of Caesar's words regarding the ships of the Veneti (Johnstone, 1976). It is a solidly built vessel with a high bow and stern; a mainmast and yard are shown, with shrouds (Fig. 1). The stem-post curves outward at the waterline, apparently to meet a projecting forefoot, and the ship is also equipped with an *artemon* mast.

Bearing in mind that this is a Gaulish vessel, it is difficult to imagine that the ships of the Veneti would have been vastly different. One might suggest a very similar design, with a few variations to meet Atlantic, rather than Mediterranean conditions. To begin with, the straight stem-post of the ship on the Canterbury coin would be better suited to the ocean than the *ponto*'s curving lines; and higher sides would meet both Atlantic conditions and Caesar's description.

The reconstruction drawing which I offer (Fig. 2), although based on all these clues and snippets of information, is naturally highly conjectural, but I have hopes

that I may be coming somewhere close to the facts, which can only emerge when the remains of a Venetic vessel comes to light.

One man, apparently, has seen the wrecks of not one, but two, Venetic ships on the site of the battle against Caesar's fleet. The story, however, as related by Creston in 1961, is both saddening and frustrating. He wrote that 'some time ago'—presumably in the late 1950s—a young French lieutenant had scuba-dived in the Gulf of Morbihan, and had discovered the remains of two ships, partly concealed by the thick mud which lies on the bottom in that area. The diver kept the precise location to himself, but did produce a stone which he said was monolithic ballast belonging to one of the vessels. This was roughly the shape of a pear cut in half lengthways, and was pierced by a circular hole 60 mm in diameter. There was also a deep furrow, perhaps cut to fit around one of the ship's timbers. The stone was 4 m long by 1.75 m wide, and the diver reported that another stone, twice the size, lay in the bottom of the second hull.

The type of stone matches that which occurs near the village of La Nee, in St Armel, Morbihan, and Creston considered it to be genuine and important evidence. He, and others, began negotiations with the diver, but to no avail. He had taken out legal, and sole, rights to the area of the wrecks, and his ambition was to make his fortune from his finds. His asking price was far too high and, as Creston describes in strong tones, he became difficult in his attitude towards the archaeologists. Negotiations were therefore suspended, and, since 1961, no word of further developments in this affair has been forthcoming. However, I find it hard to understand why the subject has not been pursued further. Even taking Caesar's claim of destroying all 220 ships as a possible exaggeration, it is clear that there are many more wrecks to be found in the Gulf of Morbihan and the Bay of Quiberon, than the pair which are the sole rights of the diver.

Conjecture has reigned for far too long on the ships of the Veneti, which are very much a part of Cornish history as well as of Breton. A complete underwater survey of the area in question, perhaps even an operation as big as the much-publicised Mary Rose project, is long overdue, and further delay will only serve to curtail our knowledge of Celtic trade, navigation and ship-building in the Western Approaches.

Probus

Quotations from Caesar's *De Bello Gallico* reproduced by permission of Penguin Books Ltd.

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Kilhallon

This site, lying on high ground to the east of St Blazey (SX 072549), was examined in August 1985 as a result of the discovery by the Kilhallon farmer of a further deposit of cockle shells. The find was only 30 m from a segment of ditch excavated in 1975, and published in *Cornish Archaeology* 21 (1982), which had produced Roman period pottery, spindle whorls and a bronze brooch, as well as several thousands of shells. It seemed probable that the ditch enclosed a Romano-British settlement, and the aim of this year's excavation was to trace the course of the ditch and to investigate the interior.

The ditch was located at three points, describing an arc some 60 m long: the search

for it on the other side of the enclosure was unsuccessful. It produced further large quantities of shell, nearly all cockle shell, a spindle whorl, part of a shale bracelet and a small amount of coarse pottery. The finds are not closely dateable, but are compatible with the mid 3rd century date ascribed to those of the 1975 excavation. There was not sufficient time to explore the interior, and a further season in August 1986 is planned, to establish the nature and the extent of the settlement.

Truro

P.M. Carlyon

St Buryan and Pelynt Churchyards

At the beginning of 1985, CCRA carried out watching briefs and limited excavation at St Buryan and Pelynt churchyards when a length of each of their boundaries was to be cut back for road widening. St Buryan is an important ecclesiastical site: there was a religious community here in 1086 (*Domesday Book*) and other records suggest that it had been there since at least the 10th century. Pelynt was recorded as a secular manor in *Domesday Book*, but the name, containing Cornish *plu* 'parish', certainly implies that the church site was in existence by then. Both churches have curvilinear churchyards and both are in locations which suggest that the Christian foundation could have been established within the ramparts of an Iron Age/Romano-British round.

Because limited time and manpower made full excavation impossible, the strategy employed at each site was first, to remove by machine a small part at one end of the strip that was eventually to be cut back. The sections were then cleaned and recorded, the potential assessed, and any further work necessary carried out by hand.

At St Buryan, this revealed that when built in the 18th century the present churchyard wall had been placed outside the line of an

earlier wall, rather than being re-built on the same line. This earlier wall had a facing of large slabs of granite set on edge; it was sitting on top of one or two courses of stone laid flat, and on a slightly different alignment, which may have represented an even earlier phase of walling. Moreover, the slab wall was found to be sitting over a silted ditch and remnants of the boundary associated with the ditch were found behind the slab wall when this fell from the section. The earliest phase consisted of four courses of stonework. On the basis of one significant find, part of the base of a Romano-British vessel, which came from the ditch fill, it may be tentatively suggested that the earliest walling plus ditch represented the defences of a round. The slab wall may represent refurbishment of that putative round in the pre-Norman period.

Watching while the machines then removed the remaining part of the churchyard that was to be cut back revealed no further traces of these early boundaries. Similarly negative results were obtained when the same techniques were employed at Pelynt, a few weeks later.

Truro

Ann Preston-Jones

A New Inscribed Stone and Churchyard Cross, St Euny's Church, Redruth

MICHAEL TANGYE

William Borlase came to Redruth in 1740 and visited the parish church of St Euny. The nave of the church, which he then saw, was contemporary with the present tower, which has been attributed to the 15th century. He noted an inscribed stone built into the exterior of the wall at the east end of the building, which he sketched, adding the following note: 'Redruth church 1740. In the eastern wall at the back of the altar on the outside of the church, there is a stone 3 ft & 6 in long by ten inches wide with the following inscrip' (Borlase, 1740). It is apparent that what Borlase saw, and recorded, was an inscribed stone similar to others of the post-Roman period found in Cornwall, and which now might be attributed to the broad period AD 500–650.

It has always been assumed that, because of the Celtic dedication, the site of St Euny church originated during such a period. Supporting this tradition is a prominent existing section of a *lan*, recognised only in recent times (Tangye, 1967). As no *lan* name has survived it is possible that an abandoned 'round' of the Romano-British period was utilised for this purpose. The site, on a west facing slope above an alluvial valley, is typical of such contexts for 'rounds' in West Cornwall. It is now identified by the gentle curving of the churchyard wall to the north and west of the church. This was rebuilt in 1793 in conjunction with the enlarging of the churchyard to the west and south (Redruth Churchwardens' Accounts). It was probably then that the oval, or circular, shape of the *lan* was destroyed. The wall separates the churchyard from an adjoining field which is 1.8 m (6 ft) lower than the churchyard within. This raising of the soil level is typical of a *lan*, representing as it does many centuries of burial around a series of churches, each subsequently larger, which stood on the same site.

The inscribed stone, here discussed, must have stood erect within this *lan*, and near the original small chapel dedicated to St Euny. It would have survived until the 15th century, when it was broken and used as building material for the church of that period, the masons fortunately placing the stone with its inscribed face outwards. The solid Georgian nave which we see today was built in 1768 (Peter, 1894) with granite from Carn Brea, replacing the nave of the 15th century church which was then attached to the present tower. Its preparation, for the needs of an expanding mining parish, was recorded in a letter from William Borlase to Bishop Charles Lyttleton, dated 10 October 1766:—

'That treasure of Druidism, Karn-breh hill, the masons are now stripping and ransacking, cleaving the obelisks, pilfering the circles, demolishing the tribunals, without mercy, or distinction. The truth is, they want stones to rebuild a church just below the hill, but as there is a profusion of them under the old castle, they might accommodate themselves with stones of every size without robbing the tombs and temples of their forefathers.'

(British Library Stowe MS 752,234)

It was during this rebuild that the inscribed stone, along with the nave, was destroyed.

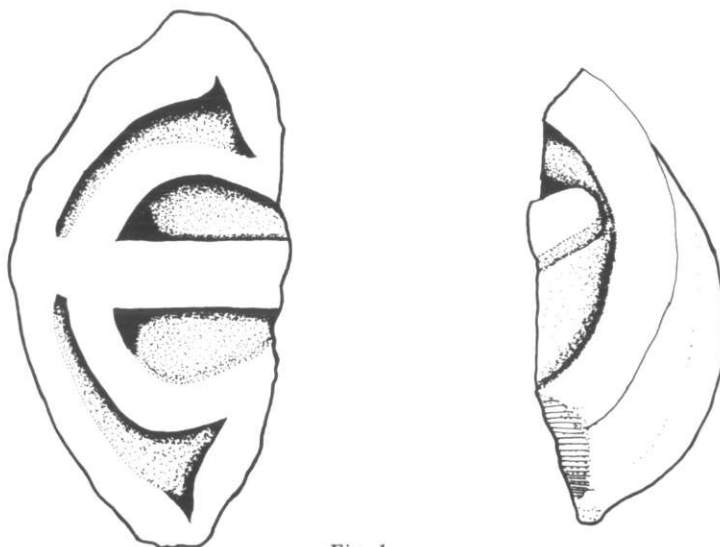


Fig. 1

St Euny: fragment of wheel-headed cross (left: front; right: reverse).

The Churchyard Cross

In 1934 a Mr Parsonage of Illogan Highway, 'noticed in the lower portion of the hedge of Redruth rectory a large curious looking stone. The rector (Rev. W.R. Ladd Canney) granted permission to have the stone removed. To do this necessitated excavation work and there was great disappointment when it was found that a portion of the cross was missing' (West Briton, Truro, 11 October 1934). This fragment, now safely preserved within the church, appears to represent the upper section of the wheel-head of a large cross of unusual design (Fig. 1). It may however represent a vertical half of the wheel-head, as the reverse shows what could be the extremity of the arm of the Christ figure when viewed in that position. (Measurements: 1 ft 10 in wide 11½ in high, 13½ in thick.) It can almost certainly be identified with the statement by William Penaluna in *The Circle*, 1819:— 'Within the fence of the plantation of the Rectory is an ancient stone which deserves the attention of the curious'. This fragment representing a large cross of the 12th century, was probably a churchyard cross associated with the Norman "Ecclesia de St Euninus" of 1283 (Charles Henderson MS, RIC, Truro). It must then have stood erect just inside the east entrance to the *lan*, before 1793 marked by a stile, at a time when the inscribed stone was also a prominent feature.

Acknowledgements

My grateful thanks are due to Professor Charles Thomas for his detailed interpretation of the inscribed stone, and to Mr Peter Pool for the reference from the British Library Stowe manuscript.

Redruth

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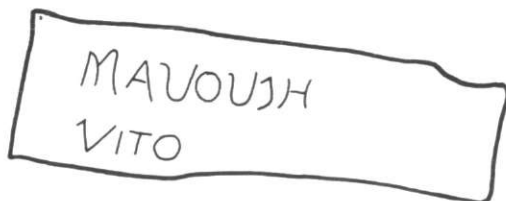
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St Euny's Church, Redruth: A Note on the Inscription

CHARLES THOMAS

William Borlase was familiar with the post-Roman inscribed stones — about half of all those now known — that had been discovered in Cornwall by his own time. We may assume that he sketched what he could see; but the Redruth stone was probably a natural pillar of coarse granite from the flanks of Carn Brea, its surface would have been rough, and if it was trimmed in any way for use as a building-stone the area originally lettered may well have been damaged.

On the face of it, with no more than a sketch-entry in Borlase's field notebook, the reading would appear to be something like MAVOVIIH/VITO . . . , with a presumption that the second line at least may be damaged. This makes no immediate sense, and therefore any further discussion has to be speculative and hypothetical; as long as it is read purely in this light, it is permissible to include it as an appendix to Michael Tangye's note of his important and interesting discovery.



The general appearance is familiar enough. A memorial of this kind would have stood upright with the inscription running down the face, so that the viewer's head would have to be turned over to the right in order to read it. This is normal. The transition from horizontal lettering, as on the Carnsew stone (479), to this vertical disposition took place in the 6th century, possibly influenced by the vertically-set ogham inscriptions associated with Christian Irish colonists (Radford, 1975, 7). Closer dating as between c. 550 and c. 700 can only be derived — and then, to some degree, as a matter of subjective judgement — from the balance of epigraphic, linguistic and even decorative aspects.

Two-line vertical inscriptions from south-west Britain are usually formulaic, set out in the form "A FILI B", where A and B are either surviving Roman names or latinised Late British names, both ending in the Latin genitive -I, and the linking word is the genitive of Latin *filius*, "son". The sense is "(The stone, or monument) of -A, of-the-son-of-B". The linking FILI or, in either Latin letters or ogham stroke-characters, its primitive Irish equivalent MAQQI, may either head the second line, as VAILATHI/FILI VROCHANI (459) or perhaps CLOTUALI/FILI MOGRATTI (471); or else end the first line, as . . . THI FILI/ . . . TOCI (485, defective, Isles of Scilly), SABINI FILI / MACCODECHETI (492) and ULCAGNI FILI / SEVERI (472).

The Redruth stone apparently begins as MAVO . . ., if the third letter that Borlase drew is an enlarged U or V. This is bound to suggest the known name MAVORIUS, which occurs on the horizontally-inscribed stone of c. 500 or later from Kirkmadrine, south-west Scotland (156). In the genitive, this would be MAVORI or less plausibly (but not impossibly) the hyper-correct MAVORII. The upper leftwards 'hook' on Borlase's fifth letter *may* be half of a damaged, thin, -R-. and it *may* be followed either by -II-, or -I-, or there may have been a vertical flaw in the granite at this point.

It is conceivable that the broad -H at the end of the line began the phrase HIC IACIT (here he lies), but it is better to assume that as few letters as possible have been lost and to see this as a case of the FI of FILI being conjoined or ligatured in such a way as to resemble an H; examples of this can be seen to a greater or lesser extent on several Cornish or Devonshire stones (457; 470; 486; 493, etc). Rather less convincing would be to take the -H as a ligatured -LI — this seems to occur on the Bleu Bridge, Gulval, stone (462) — because this would require finding -FI- from the preceding letters and would reduce the first name to an unlikely MAVO or MAVOI.

The second name in the lower line begins with a letter that is much more likely to be V- than a defective N-, largely upon linguistic grounds; *Nit-* is hardly an attested first element for any Latin or British name. There are instances of the names *Vital(is)*, *Vitalin(us)* and *Vitalian(us)* on stones elsewhere, with VITALI on the stone at St Clement, in the churchyard (473). But if Borlase accurately copied an -O-, we may have to suppose VITO- as a late, rustic and erroneous inclusion of the Latin name VICTO(RI), 'of-Victor'.

In summary, then, and given the scanty material for discussion, the most that can safely be suggested is that the original inscription *might* have read MAVORI(I) FILI/VITORI, implying "(The stone) of Mavorius, of the son of Victor". It should be dated to a broad period of c. AD 550 to 650, and if Borlase accurately reproduced the exact forms of the letters M, A and T there would be a slight preference for c. 550–600. The survival of purely Roman names, even in Cornwall, to the 6th century is entirely possible. The name *Mavorius* is originally a British one; it could represent the much older, and attested, Gaulish *Magurio-*, *Magurius* (Evans, 1967, 221–2), from the stem *magu-*, "boy, youth, vassal, slave", and we can suppose a British **Mauuri-os, -us* (the first -u- being the semi-consonantal -w- sound). Historically, there is no reason to doubt that there *was* such an inscribed stone, now lost; that its inscription was along these general lines; that in all probability it was found *in situ*; and that it offers strong support to the presumption that the Redruth churchyard began as a developed Early Christian enclosed cemetery of the 6th or early 7th century. But it must again be stressed that, today, we can only make a reasonable guess at what it actually read.

Institute of Cornish Studies

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Numbers, as (462), refer to:

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Retallack: a Late Medieval Tin Mining Complex in the Parish of Constantine, and its Cornish Context

SANDY GERRARD

Surviving on the present farm of Retallack, Constantine, are the well preserved remains of at least six separate mills. They all lie in deciduous woodland on the lower west facing slope of a narrow and steep sided valley at NGR SW 732300. All six lie within a stretch of 240 m and consequently comprise a unique and invaluable source of information regarding the character and development of late medieval tin dressing and blowing. Until now, this site has only received scant attention. To rectify this situation the complex was surveyed to ascertain its true character and extent.

Background

The first known record of the site was made by Bryant (1882). His article described a single structure associated with many crazing and mortar stones, two socketed stones and a granite lined buddle. Twenty-six year later G.R. Lewis, in his study of the Stannaries' wrote that "Twenty years ago there existed at Retallack Farm in Constantine interesting remains of such an ancient 'crazing mill'" (Lewis, 1908, 14). The briefness of this statement suggested that he never visited the site, and may have been of the opinion that it had been destroyed. It was left to Charles Henderson in 1927 to bring together the relevant surviving documentation, and he stated that Retallack:—

was part of the lease-hold lands of the manor of Merthen in 1506, the tenant being Nicholas Pentacost, at a rent of 34/8. There was also a Blowing-house or Tin smelting work there at this time. In 1545 John Pencoste bought part of the coppice wood at Merthen, possibly for use in the furnaces at Retallack. (Henderson, 1927, 121).

and:—

There was an ancient Blowing-house at Retallack mentioned as a "Molendinum Sufflaticum" in 1506. The old ridgeway coming from the North by way of Lestrainess and Maen-Rock to the ford at Retallack was probably the reason why the Blowing-house was established here. (Henderson, 1927, 228).

Only a single blowing-house was located during the field survey and it is thus likely that it is at least of early sixteenth century date. It is, however, also likely that other parts of the complex were functioning at the same time. The next and final references to the site were by D.B. Barton (1971, 62) and T.A.P. Greeves (1981b, 198), both of whom noted the existence of the complex, but added no further information. The existing literature thus suggested that a single building 'housing crazing, stamping and blowing apparatus' had functioned in the early sixteenth century and survived until the late nineteenth. However, survey rapidly established that the picture was much more complicated.

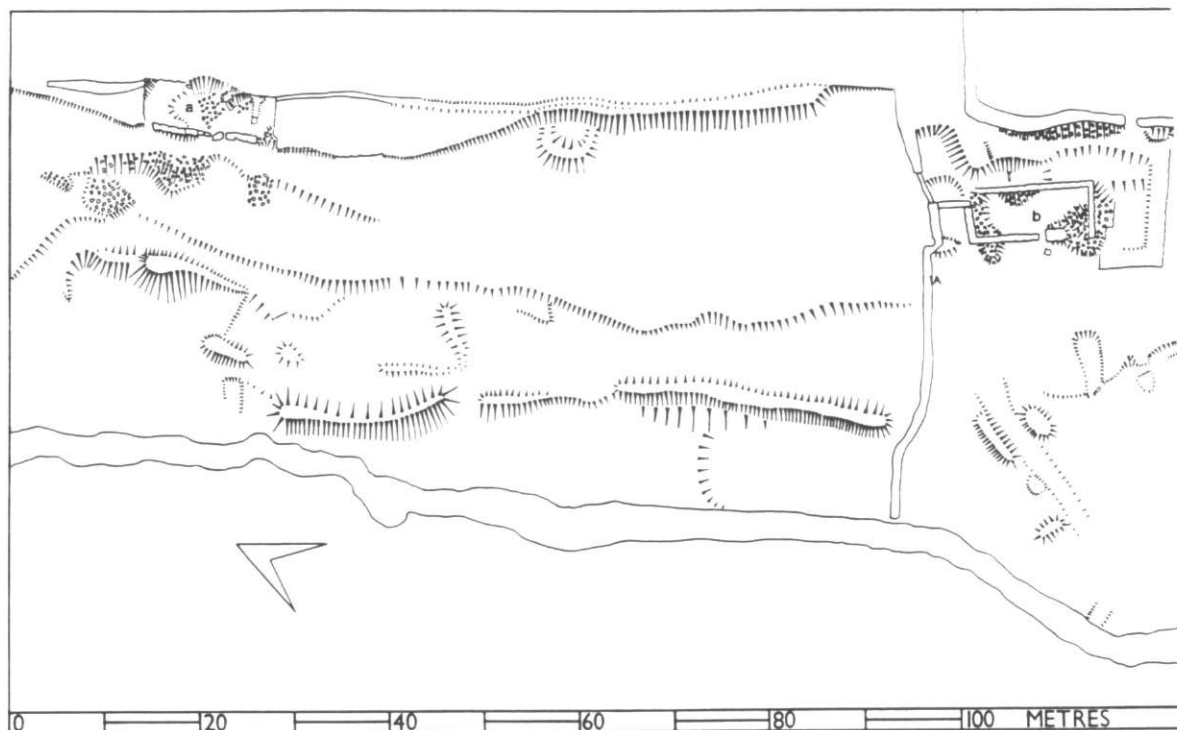


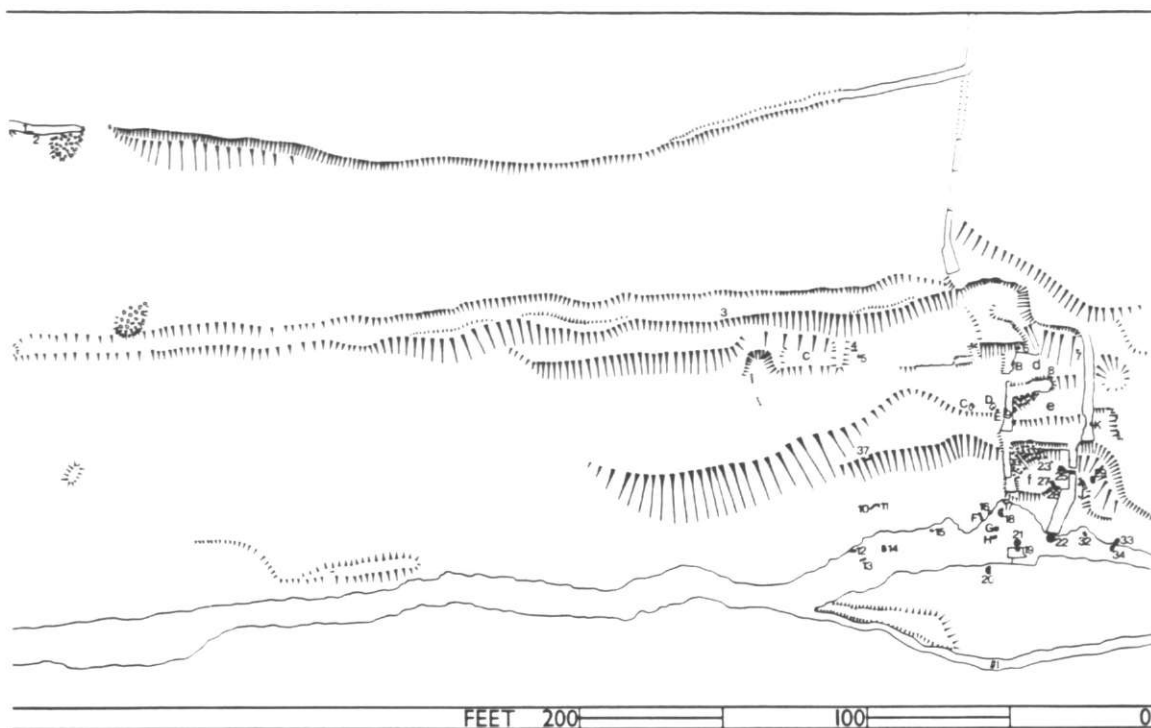
Fig. 1
Site plan.

The site was brought to the attention of the present writer by the owner, Mr David Hyde, who on learning of my interest in early tin mills sought me out and invited me to visit. Mr Hyde's encouragement extended to him and his son assisting with the survey and offering much practical help. The initial visit indicated the importance of the site, for within this single complex were four apparent crazing mills, two stamping mills and one blowing-house. To put this into context, no other crazing mills, only two stamping mills, and one blowing-house of roughly the same period were at that time known to survive in Cornwall. The Retallack tin processing site is thus the only unit in the county where all the elements of this important aspect of the industry are represented together.

The Survey (Figs. 1 and 2)

Crazing Mills

During the survey two complete crazing millstones and thirty-five fragments were found. The location of these stones suggested that there were four distinct areas of crazing activity. The stratigraphically earliest mill (c) survived as a low rectangular earthwork terraced into the hillslope. The wheelpit lay at the northern end of the building and was defined by a rectangular hollow lined on one side by four stones set on end. At the southern end of the structure were two pieces of crazing millstone (Nos 4 and 5) set upright to form two sides of a stone box. The function of this feature could not be established, but may have been associated with a later phase of this mill, being possibly the lining for a second wheelpit. Immediately downhill of this mill seven fragments of crazing millstone were found, having pre-



sumably been discarded when broken or worn too thin. Four of these stones lay in the river where water had prevented them being obscured by later debris, whilst another two had been set into the ground to form the edges to a structure which may have been the buddle recognised by Bryant. The remaining one protruded slightly out of the hillside, and it is possible that others lie concealed below the surface. Stratigraphically this building was the earliest in the complex since its leat had been partially filled by debris from the construction of the upper leat, which served the mills to the south. However, it is likely that a contemporary stamping mill existed because it is unlikely that a crazing mill would exist in isolation.

The northernmost mill (*b*) within the complex was of drystone construction and survived up to 1.7 m high. No wheelpit could with certainty be identified, although an elongated depression east of the mill could have been the site. A leat embankment north-east of the structure was identified, however, thus confirming the mill status of this site. Within 13 m of the mill two fragments of crazing millstone (*1* and *2*) and a broken mortar stone (*A*) were found built into field walls, although none was found within the structure. These stones suggested strongly that this mill had both crazing and stamping machinery, and given the substantial dimensions of this structure (12 m by 4.5 m) both may have operated concurrently. Built onto both short sides of the mill were rectangular structures. The northern one had the appearance of being an animal enclosure of comparatively recent times, since it butted the nearby field boundary which contained the mortar stone. The structure to the south could also have served a similar function or may have been a shelter for the dressing floor workers.

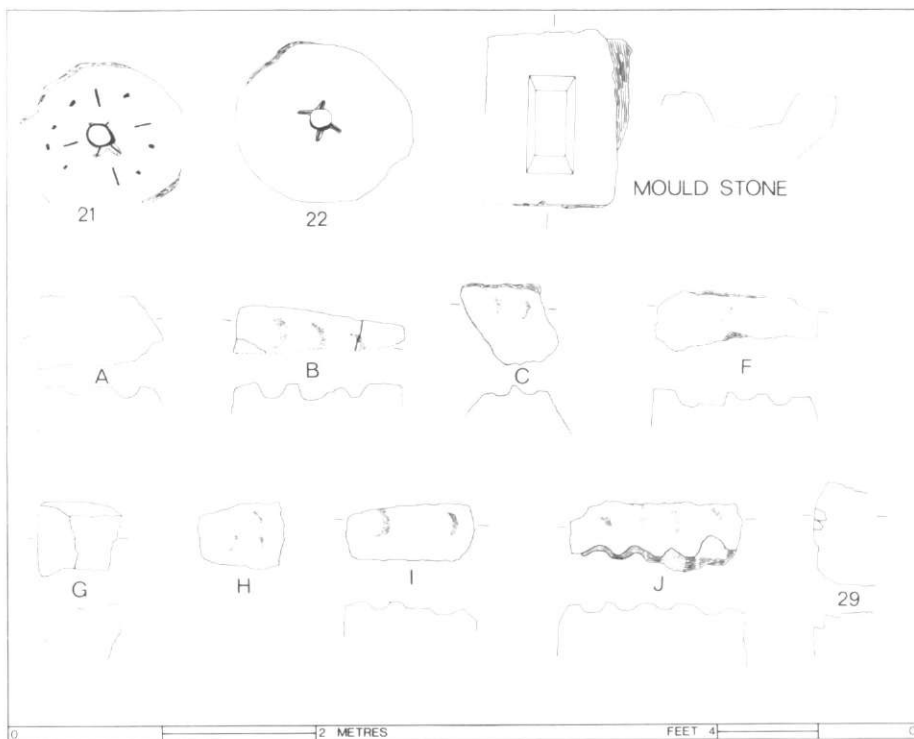


Fig. 2
Examples of crazing, mortar and mould stones.

The third distinct concentration of crazing millstones was amongst the group of structures at the southern end of the complex. Three buildings lying in sequence down the valley slope were identified. Within the upper building (*d*) three small pieces of crazing millstone were found, whilst built into the wall of the central structure (*e*) was a single stone and in close proximity to the lower, were eighteen fragmentary and two complete stones. This distribution suggested very strongly that the lower building (*f*) was a crazing mill, and this was supported by the presence of a slotted stone built into the southern wall of the structure. Similar stones have been found associated with Devon tin mills and grist mills (eg Nosworthy and Babeny), and they were probably support for horizontal millstones. The large number of crazing millstone fragments from this site suggest that the mill had a long or very intensive operational use, and it is worth noting that more stones have been found within this single building than from the remainder of Cornwall. This, more than anything, emphasises the scale of what remains to be discovered or has already been destroyed elsewhere in the county, since it is unlikely that the late medieval crazing mills at Retallack were unique.

The probable source of material for crushing was ore from the nearby small scale alluvial streamworks, a small shaft and adit mine 40 m to the south-west and the slag which was crushed to enable extraction of tin lost to earlier blowing operations. The power source to drive this mill was provided by water from a leat which flowed from a large reservoir, 160 m upstream. The wheelpit lay on the southern side of the building and the axle opening was still clearly discernible, as was the crazing

mill stone (29) which had been reused as an axle-bearing. This last stone had been displaced, presumably when the wheel was removed, and in the upper fill of the wheelpit were two fragments of a crazing millstone and a very fine mortar stone (*J*), which had been used on all four sides. The position of these stones suggested that there had been much disturbance following abandonment, and this was confirmed by the existence of a later field boundary built onto the south-western edge of the mill. It is possible that the upper mill (*d*) in this group may also have been a crazing mill at one time, since it is unlikely that discarded fragments from the lower mill (*f*) would have been carried up the steep slope, although the distribution of mortar stones suggested that this latter site was primarily a stamping mill.

Thus within the Retallack processing complex there may have been up to four crazing mills operating over a prolonged period. Since Carew (1602, 94) records that such mills were becoming redundant by the early seventeenth century, the largest part of the operations may indeed have occurred prior to this date. Similar sites were probably a common feature of the tin bearing areas of Cornwall, but because they were situated in close proximity to extractable lode material, rather than alluvial and eluvial deposits (which were less likely to require grinding), they have been largely destroyed by the later working of this resource. At Retallack the later mine (Wheal Vivian) is situated about 400 m to the south, and the earlier buildings have consequently survived. This is probably what accounts for the remarkable survival of the site, the structures themselves being similar to those that once existed elsewhere.

Stamping mills (Figs. 1 and 2)

The discovery of eleven mortar stones confirmed that stamping had once played a part in this complex. The northernmost mill (*b*) was also associated with crazing mill stones and has already been considered. The main concentration of mortar stones was associated with the southern part of the complex. Here the distribution of stones was largely limited to the upper building (*d*) and the hillside immediately downhill of the northern doorway. The picture that emerged was of stones being thrown out of the entrance and rolling downwards towards the stream. The only two exceptions lay on the other wise and both had clearly been disturbed since one (*K*) was built into a later field boundary and the other (*J*) lay in the upper fill of the wheelpit associated with the lower crazing mill (*f*). One stone (*B*), had been built into the northern wall of the stamping mill, and this confirmed that the surviving structure was not original, and had been built at a time when some discarded stones were already available for building purposes. The complete stones were of the double and triple variety, the only triple stone being built into the mill. It is thus probable that the original mill worked with three head of stamps and that the replacement used two. Many of the double mortar stones possessed more than two hollows, but since some overlap and others are not aligned with each other they can all be resolved into pairs, each of two mortars. The stones with three hollows (except *B*) are probably broken examples which were used by a pair of mortars, and this is clear on stone (*f*) where two overlapping hollows can not have been contemporary.

As far as is known the dressing of the crushed ore was carried out in rectangular buddles during the late medieval period and two examples were found. The first was represented by an elongated stone — lined depression downhill from mill (*b*), and the second by the two pieces of crazing mill stone set on edge which may represent the upper part of a buddle. Other examples probably once existed, but these had either been destroyed or buried below the dressing debris.

Blowing house

The drystone walls of the blowing house (a) survive up to 1.5 m high and in the centre is the mould stone into which the molten tin had flowed. No traces of the wheelpit or leat were visible, but these may have been destroyed by agricultural activity. A raised platform in the southern part of the building may have been the remains of the furnace. Slag was found by the river immediately below the structure and is likely to have come from this blowing house. The black tin processed by this house was probably derived largely from the nearby stamps but it is also possible that some was brought from streamworks and mines in the neighbourhood, since the nearby "old ridgeway" would have allowed ready access.

Conclusion

Documentation indicates that a blowing house was operating at Retallack in 1506, and it is likely that the surveyed example was the site of this venture. The identification of a stamping/crazing mill of similar architectural character suggested that this probably provided much of the "black tin" that was smelted locally. The crazing and stamping mills further downstream were of a much smaller size and survived only as low, much ruined walls. This suggests that they were earlier than the other two more massive structures. However, it was not possible to demonstrate this stratigraphically, and only excavation will ever reveal the true chronological relationship between the northern and southern part of the complex.

The Cornish Context

During the medieval period, Cornwall and Devon were important producers of tin, and the numerous tinworks in each county bear testimony to the impact of this industry on the landscape. On Dartmoor, archaeologists have located the sites of many tin processing complexes where the ore was crushed, dressed and smelted before delivery to the stannary towns (Greeves, 1981a). There are four archaeologically distinctive elements to mineral processing: crazing mills, stamping mills, buddles and blowing houses. Research by Dr Tom Greeves has revealed that a minimum of three crazing mills, thirty-two stamping mills and twenty-three blowing houses have extant remains on Dartmoor (Greeves, 1981b). By contrast, in Cornwall the sites of only three crazing mills, four stamping mills and two blowing houses are known. Information from the Coinage Rolls, which reflect tin production in the south-west, indicate that Cornish output was ten times greater than that of Devon throughout much of the medieval period (Lewis, 1908). It might thus be expected that the greater percentage of processing sites would also be in Cornwall. However, this is clearly not the case and the possible reasons for this anomalous situation deserve attention.

Crazing mills were used to grind either the ore already roughly crushed in "dry" stamping mills or "the crust" of their tails" (Carew, 1602, 94). They may be detected archaeologically by circular mill stones similar to those found at grist mills. Contemporary records suggest that they were, prior to around 1600, a common feature of the tin processing scene (Carew, 1602, 94), but archaeological field evidence certainly does not support this view. One explanation for this contradiction is that crazing mills were sometimes converted to use as grist mills. Under such circumstances there would have been no need even to remove the machinery, since corn would have been as readily ground as ore in the existing apparatus. A second possibility is that the mill stones, flat and relatively thin when discarded at

the end of their working life, rapidly became buried and thus invisible to field survey. Thirdly, those stones which were not buried may have been removed by collectors anxious to display such "curious" objects. A glance around the Cornish countryside would confirm that many mill stones are no longer in their original location. The fate of the crazing stones is important, since the structures themselves may have deteriorated to such an extent that the absence of the tell tale stone makes interpretation and discovery otherwise impossible.

Stamping mills were utilised to crush the ore by pounding it between iron-shod stamps and mortar stones. As a consequence of this process the stones developed hollows, and it is these artifacts which have led to the discovery of many of the mills on Dartmoor. In Cornwall only twenty-two (eleven from Retallack have survived, whilst on Dartmoor one hundred and seventy examples are known (Greeves, 1981b, 194). There are, however, a number of possible explanations for this discrepancy. Firstly, many of the medieval Cornish tinworks have been reworked in modern times, and the much larger scale of these later operations has frequently destroyed the earlier evidence. On Dartmoor, by contrast the much smaller scale of recent reworking has allowed better survival of earlier remains. Secondly, the mills of Dartmoor tend to be situated in more remote localities and consequently have not been as severely robbed or interfered with as those in Cornwall. Thirdly, the vegetation in the appropriate areas of Cornwall tends to be much more dense with, for example, thick woodland covering those valley sides that on moorland Dartmoor would be clad only in low cropped grass. This dense undergrowth makes the discovery and interpretation of mills difficult, since any mortar stones will often be hidden. Fourthly, it is possible that mortar stones were not as widely used in Cornwall, and that a crushed bed of stone or iron may often have been employed instead. There is at present no evidence to support this suggestion, but these techniques were certainly employed in the modern tin industry (17th century onwards), and may have been adopted by some medieval tanners. The final possibility is that much of Cornwall's medieval output was from alluvial and eluvial workings, which required no stamping. Certainly, on Bodmin Moor the greatest percentage of recognisable early tinworks are of this variety. On Dartmoor, more of the tin was derived from the lodes and thus required stamping. All of these factors may have contributed to the shortage of surviving stamping mills and their associated mortar stones, but it is likely that further examples will be discovered from time to time, although at present it seems unlikely that the archaeological evidence of this site type will ever rival the quality of that from Dartmoor.

Blowing houses were employed to smelt the tin and were so named because of the use of bellows, powered by water wheels, to encourage the furnace to reach the necessary temperature. The reasons for a shortage of surviving examples in Cornwall are numerous. Firstly, many may have been converted into grist mills because their large size and existing water supplies made them ideal choices, at a time when blowing houses were being replaced by reverberatory smelting works and the increasing Cornish population demanded a greater corn grinding capacity (Barton, 1971, 69). Secondly, during the blowing process tin may have escaped into the ground, walls and roofs of the house, and thus, when a site became redundant, it could have been worthwhile to demolish it to obtain this lost metal. This factor would have affected the survival of blowing houses throughout the south-west, but it is possible that the custom was more prevalent in Cornwall. Thirdly, the mould stones, which are so characteristic of this type of site are easily

transported and have often been removed and reused as animal feed troughs. Finally, Cornish blowing houses were situated closer to centres of population than those on Dartmoor, with the result that many redundant examples were probably robbed for building stone.

Contemporary documentation from Cornwall indicates that early tin processing sites were once abundant. This paper has attempted to outline possible reasons for the scarcity of surviving examples. Despite the importance of these specific factors, the major reason for the imbalance is that Cornish fieldworkers have, over the past century, largely overlooked this important aspect of the county's archaeology. In Devon, by contrast, R. Burnard, W. Crossing, R.H. and R.N. Worth, H. Parsons, French and Linehan, and most recently T. Greeves (1981a) have all been involved in locating and identifying sites. It is thus likely that further work in Cornwall will reveal more examples of this class of monument, and it will not be until this is achieved that the late medieval and earlier Cornish tin processing industry will be properly understood.

Acknowledgements

I should like to thank Mr David Hyde, Retallack Farm, for his continued interest and support; Dr Tom Greeves for encouragement and, more practically, for reading and commenting on the initial draft of this paper, and Peter Rose for his useful observations at an early stage of the work.

Arbroath, Angus

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An Ancient Wall at Pendennis Point, Falmouth

DAPHNE HARRIS *and* JANE ANDREW

Pendennis Point, Falmouth, guards the entrance to the River Fal and to the anchorage of the Carrick Roads. It has always been of great strategic importance, both to safeguard shipping in the harbour and to guard against invasion or the depredations of pirates. The earliest mentioned defence of the promontory is that of a treble entrenchment of turf, earth and stones cutting off the headland, and presumably representing an Iron Age cliff castle (Hals, 1750, 129). Later, Henry VIII required strong defences along the south coast, and St Mawes castle and then Pendennis were built between 1540 and 1545 (Morley, 1973); the latter was in existence when Leland visited it by 1544. These strongholds still stand today. At the time of the construction of Pendennis Castle, or possibly just before, at the instigation of John Arundel of Trerice, a small blockhouse was built on the rocks at sea level at the extreme tip of Pendennis Point (Oliver, 1875). Early military drawings, of which copies are displayed in the castle, show a wall extending along the shore north-westwards from the blockhouse for about 80 metres. This wall appears in a drawing made 'within a decade of the building of Pendennis Castle', where it is shown with crenellations. Elizabethan defences constructed in 1598 caused alterations, but in Norden's map of 1611 a wall can still be seen, without crenellations, apparently forming the front face of a gun platform; it is drawn as if built of squarish blocks of stone, and if so would be a heightening of the original wall which is made of slate slabs. The wall appears to have been submerged under the Civil War outworks of 1646 and later defences, and it finally disappeared from sight. No wall can be seen in a drawing of 1811.

Recently the sea has cut into the low cliff here, and revealed some of the ancient wall. In parts the erosion has cut right through the line of the wall, leaving exposed sections which are still about 1 m high. In other places there is still an overburden of soil up to 0.80 m thick above the remaining stones. The wall is built of large flattish slabs, and is just over 1 m broad. No cement is visible, but the interstices between the stones are now filled with earth. The wall stands directly on a layer of stone and shillet in brown earth between 0.80 and 1.20 m deep, which in turn lies on the bedrock; this is a continuation of the rocks of the shore, which are mostly covered by the sea at high tide. It is quite possible that the sea will cause further erosion of the cliff, and the wall be completely destroyed. The attention of the Cornwall Archaeological Society was called to this danger by Mr A.D. Saunders. It was decided to make a survey of the wall, and a record of some of the sections through it. A group of four members undertook this task in May 1984.

The plan (Fig. 1) shows the edge of the cliff, with the wall indicated by a dotted line where it lies under soil and bushes. The letters *a* to *e* mark the position of the features drawn; *a*, *c* and *e* are sections across the wall; *b* and *d* are stretches along the wall face where erosion had left it visible.

It may be that further erosion will expose more of this ancient wall before the same pressures finally destroy it.

Acknowledgement

We are grateful to Mr Beric M. Morley who read this note and made very helpful criticisms and comments.

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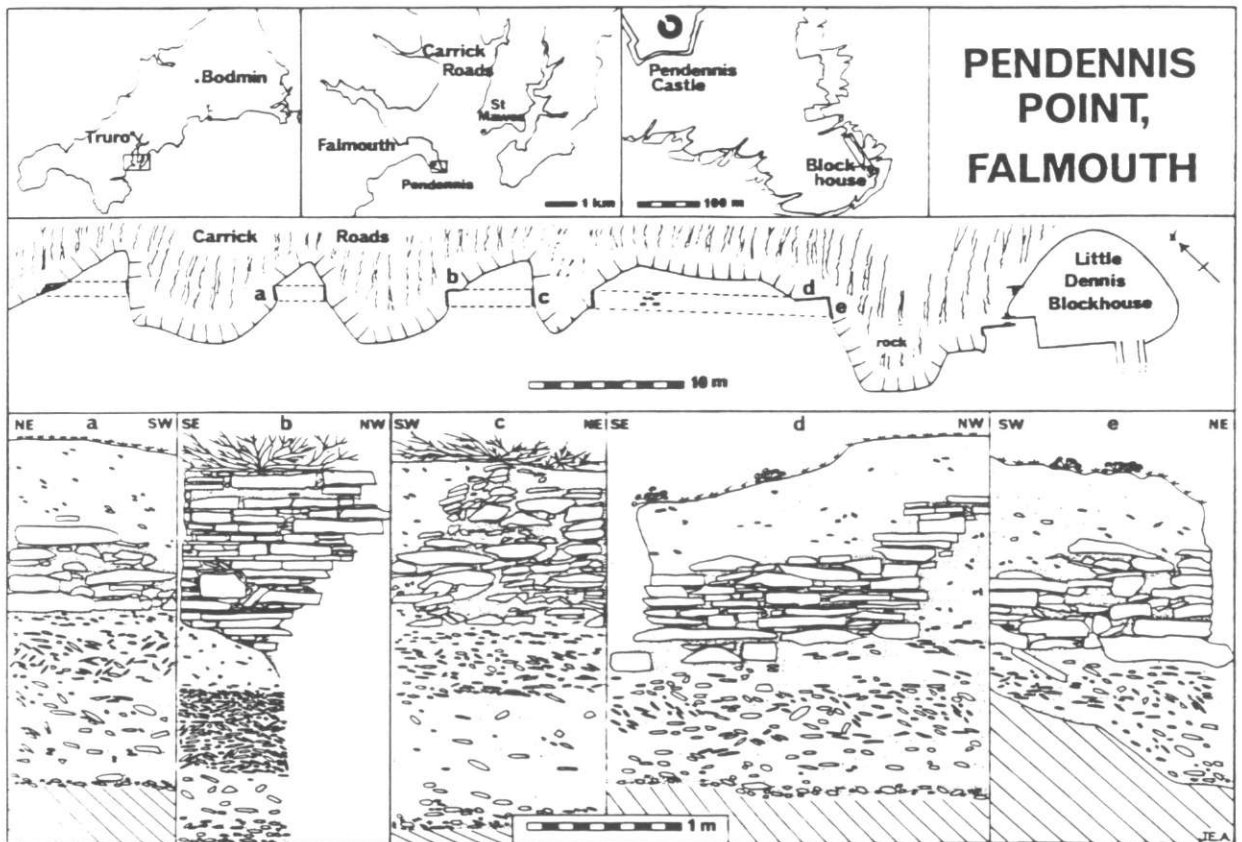


Fig. 1

Location and plan of the 16th century wall at Pendennis Point, with sections across and along it.

The Beehive Huts of Bodmin Moor

JACQUELINE A. NOWAKOWSKI and PETER C. HERRING

In the course of fieldwork on Bodmin Moor, the authors systematically recorded an individual class of moorland building — the small, corbelled beehive hut. Close analysis of these structures reveal that they are found within two specific settings; in farmsteads and on the open moor. Contextual analysis has enabled the authors to offer potential functions and uses of the huts, and to offer post-medieval dates for the farmstead huts and medieval dates for those found on the open moor. The farmstead huts are shown to be multipurpose depending on their differing locations within the farms, whilst the open moor huts can be seen to be important survivals of medieval pastoralism.

Introduction

Although the beehive huts of northwest Bodmin Moor were occasionally reported in local journals in the second half of the 19th century (Wilkinson 1860, 36–38; Edmonds 1861, 48–50; Malam 1889, 349), they were not studied in any systematic way. This century beehive huts have been virtually ignored, except for passing references (eg Folliott-Stokes, 1912, 74; Axford, 1975, 72), presumably because they are no longer considered to be of any great antiquity. However, they do form an interesting architectural group that deserves to be recorded in its own right, and their study throws light on medieval and post-medieval farming practices on Bodmin Moor.

A survey of the eighteen beehive huts known to the authors (Fig. 1) was undertaken in 1982, when each was planned at the scale of 1:50 and elevations and internal profiles drawn (wherever possible) at the same scale (Figs. 2 and 3). For ease of comparison, dimensions and other significant information have been tabulated (Table 1).

Many of the distinctive features of beehive huts can be illustrated by the well-preserved example at Fernacre in the secluded valley between Brown Willy and Roughtor (Fig. 3). Its walls are of uncut granite blocks built with good vertical faces to support a corbelled granite roof, capped with turf. Turf was also used to seal any gaps between stones in the hut's walls. Some of the 'crows' recorded in West Penwith share these characteristics (see Nicholas, 1968).

The majority of the huts (13 out of the 18) are set within farmsteads, but the remainder are located well away from settlements, on open moorland or in rough pasture. An exception is the Fernacre hut, beside the De Lank river, in the fields below the farm. It is difficult to accept that these two groups performed the same function, or even that the huts within farmsteads were all used in precisely the same way. The open moor huts were built with larger slabs of granite than the farmstead huts and were not as neatly constructed. They also tend to be much less well-preserved; all four have fallen in to some extent, the Louden Hill example having collapsed completely.

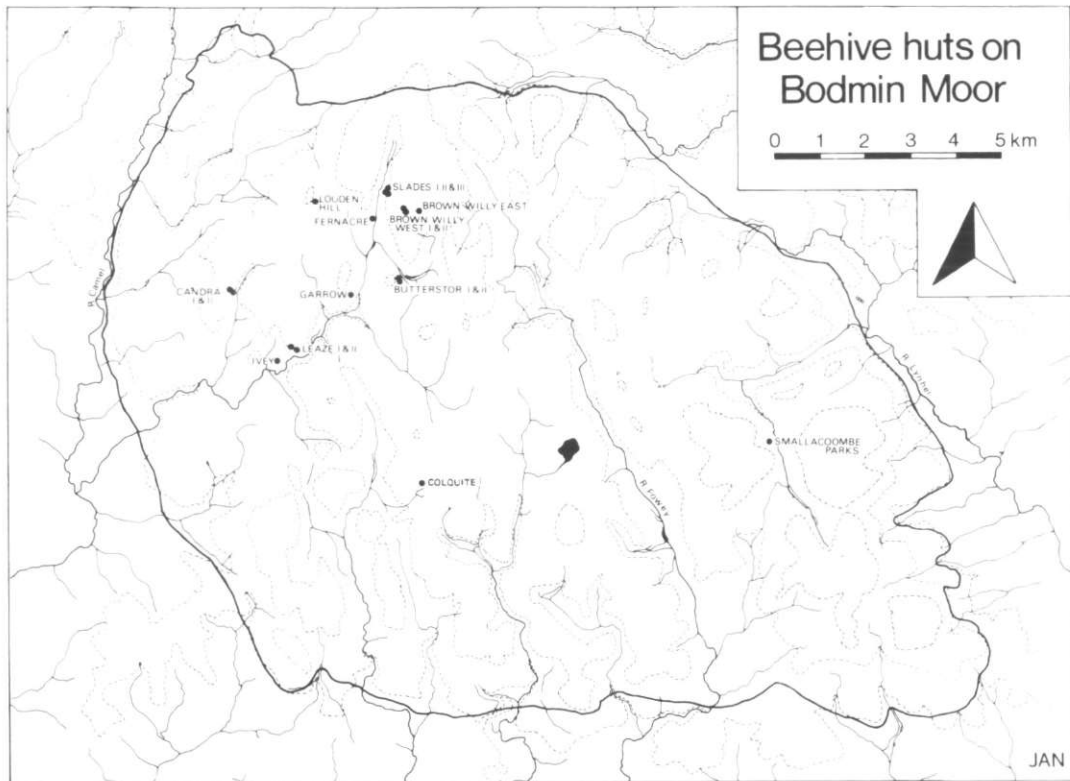


Fig. 1

Distribution of recorded beehive huts on Bodmin Moor. Contours at 183 m (600 ft), 244 m (800 ft), 350 m (1000 ft); land above 350 m stippled. Heavy line is the granite boundary.

Dating

19th century attempts to date the Bodmin Moor beehive huts rested mainly on their erroneous equation with the Iron Age corbelled chambers of West Penwith or interpretation as well-preserved hut-circles. Edmonds (1861, 48), for example, compared the Brown Willy huts with the 'Beehive Caves' of Chapel Euny, while the Rev Malam supposed the one on the eastern side of Brown Willy to be a hut-circle with 'the domed roof remaining'. This hut, he suggested, 'may be relatively modern . . . unless we may suppose it to have belonged to the last prehistorics'. (Malam, 1889, 349). Ironically Wilkinson, nearly thirty years earlier, had concluded that the Brown Willy beehive huts were of a later date than the hut-circles and were also probably later than the Irish monastic beehive huts of the 6th and 7th centuries AD (Wilkinson, 1860, 38). His work appears to have been overlooked in spite of his comparatively meticulous recording.

There is, in fact, only indirect dating evidence for the huts, as no documents exist which deal specifically with them, and none of them has been excavated. However, it is possible to propose a mid 19th century date for the hut at Colquite. This farmstead did not exist when the St Neot Tithe Map was drawn in 1842, although it is recorded on the first edition of the OS large-scale map published in 1882. The hut at Colquite is an integral part of the yard walls. Similarly, the layout of the farm at Outer Butterstor was slightly altered between publication of the first and second editions of the OS large-scale maps (1881 and 1905). The two huts here open onto

Table 1:

Location and structural attributes of beehive huts on Bodmin Moor.

Name	NGR (SX)	Context	Internal Area (m ²)	Internal Shape	Maximum Height Int (m)	Entrance Height (m)	Entrance Width (m)	Entrance Aspect	Door Type	Lintel Length (m)	Notes
Louden Hill	137802	1	3.4	ellipse	—	—	—	120°	3	—	Completely collapsed.
Brown Willy West 1	15817998	1	1.6	square	0.7	—	0.4	340°	3	—	Roof tumbled in. Connected by short wall to Brown Willy West 2.
Brown Willy West 2	15817998	1	5.8	irregular	1.6	1.0	0.35	170°	3	1.1	Roof tumbled in, door still stands.
Brown Willy East	16037984	1	2.9	square	1.1	0.6	0.5	270°	3	—	Roof partly tumbled. Post-dates boundary.
Fernacre	15137972	2	5.6	square	2.3	1.2	0.7	270°	2	1.5	Intact. Short wall abutts to east.
Butterstor 1	15677836	3	2.9	pear	1.5	1.25	0.4	110°	3	1.25	Door partly collapsed. Uses drill-split stones. c. 1880—1900.
Butterstor 2	15677836	3	4.9	square	2.0	1.3	0.4	110°	3	1.0	Intact. Attached to Butterstor 1. c. 1880—1900.
Smallacoombe Parks	23937471	3	7.56	square	—	—	—	—	—	—	Very ruined.
Leaze 2	13387683	3	3.1	irregular	1.5	0.9	0.5	220°	4	1.25	Intact. Post-dates a ruined building to N.
Ivey	12977646	3	c 2.0	—	—	—	—	—	?3	—	Now destroyed.
Slades 1	15408030	4	2.4	circular	1.6	0.85	0.5	190°	3	0.8	Intact, except capstone removed. Late 18th century.
Slades 2	15408030	4	c 1.6	irregular pentagonal	—	—	—	280°	?3	—	Door blocked by rubble; back wall collapsed. Late 18th century.
Slades 3	15408030	4	c 1.6	irregular pentagonal	—	71.1	0.55	280°	3	1.3	Door blocked; otherwise intact. Late 18th century.
Leaze 1	13287686	4	2.6	irregular	1.6	1.1	0.4	150°	1	0.7	Intact.
Garrow	14587795	5	2.6	ellipse	71.9	1.2	0.6	170°	4	1.1	Roof collapsed; door intact. Predates attached walls. Mid 19th century.
Colquite	16467389	5	c 2.0	?square	71.8	1.2	0.65	160°	3	1.5	Roof collapsed; built into reverted bank. Mid 19th century.
Candra 1	11907823	5	c 2.0	?square	—	—	0.4	200°	4	—	Collapsed.
Candra 2	11907823	5	2.1	irregular pentagonal	—	—	0.5	200°	4	—	Collapsed and robbed.

Key

Contexts: 1 = Open Moor; 2 = In fields, detached from farmsteads; 3 = Edge of farmstead; 4 = In farmyard; 5 = Close to dwelling-house.

Door type: 1 = two door posts; 2 = two uncut orthostats; 3 = two faces of drystone walling; 4 = one doorpost, one face drystone walling.

a newly realigned lane and therefore postdate this change. (It may be further noted that the Butterstor huts incorporate stones split by the tare-and-feather technique, a 19th and 20th century method, see Worth, 1953, 366). The Garrow hut, sketched by Sir John Maclean (1873 plate VIII, facing p 352), was referred to by him as being 'modern' and the benighted Blight, five years earlier, wrote of beehive huts similar to the one at Smallacoombe Parks being, 'built not a hundred years ago' (1868, 15-16). Detailed fieldwork by one of the current authors has enabled a late 18th/early 19th

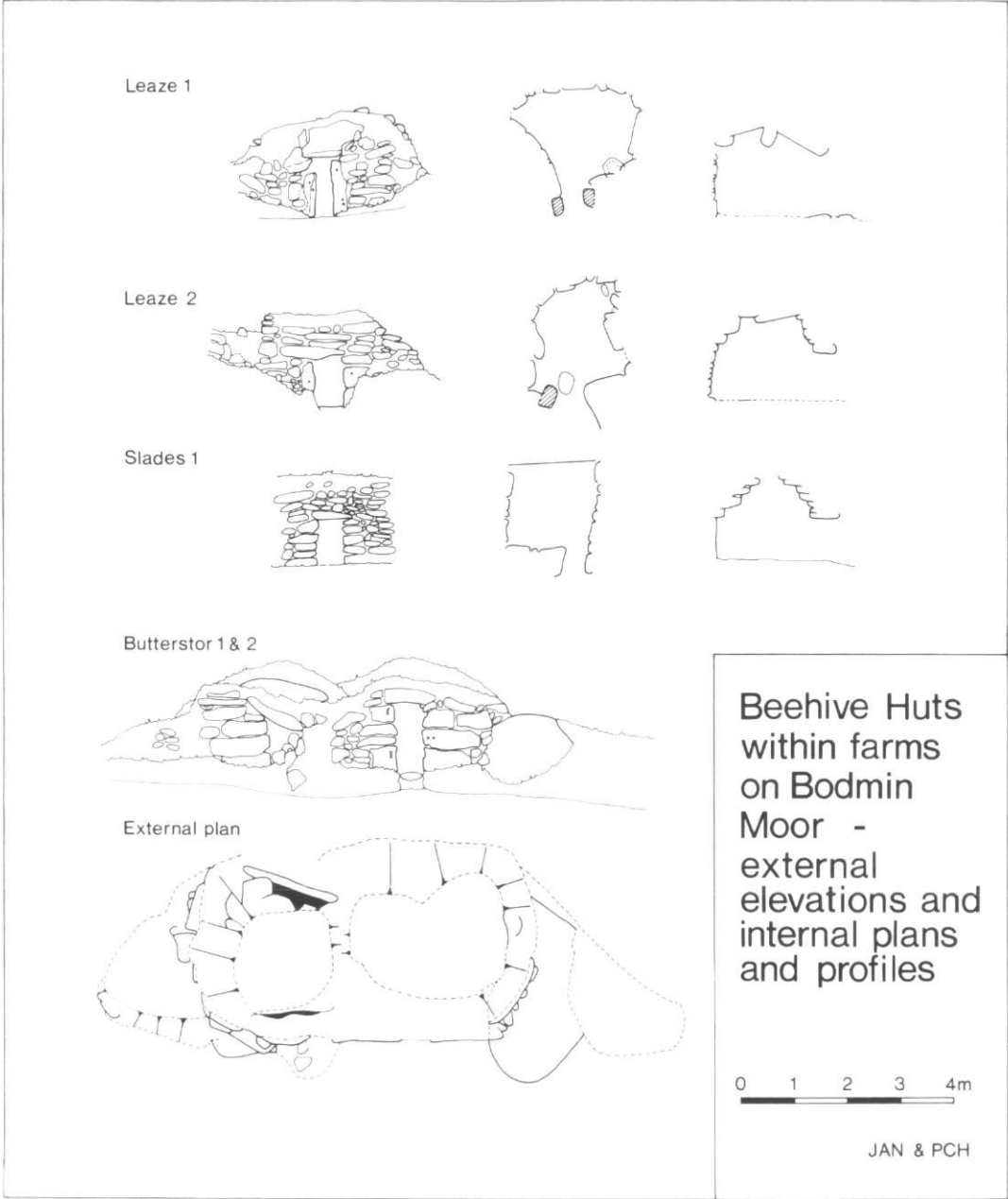
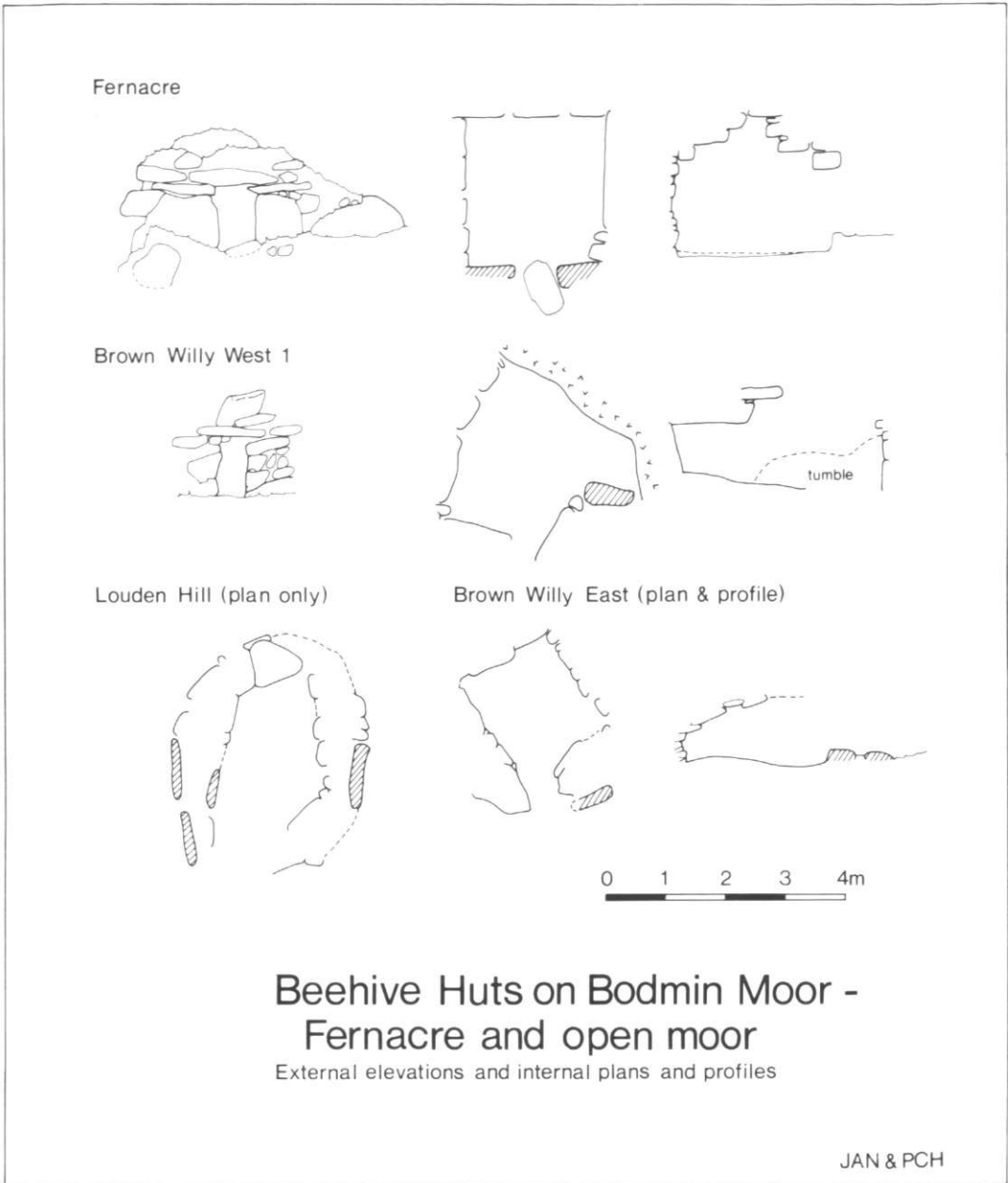


Fig. 2
The farmstead beehive huts on Bodmin Moor.



*Fig. 3
Beehive huts at Fernacre and on the open moor.*

century date to be proposed for the phase of the farmstead at Slades to which the three huts there belong (Herring, forthcoming).

Seven of the 13 farmstead beehive huts can thus be dated quite securely to the late 18th and early 19th centuries. The others, while perhaps not quite as late, are also almost certainly of post-medieval origin. Leaze hut 2 is built into a substantial wall which was not shown on the plan of the farm produced for the 1695 Lanhydrock Atlas (CRO FS2/32/4/58). It thus appears to be later than this date, although

Leaze hut 1 cannot be so easily dealt with. Three other huts, two at Candra and one at Smallacoombe Parks, are associated with farmsteads that were ruined by the 19th century, but which are of clear post-medieval character and would not be out of place in the 18th century. Unfortunately, the hut at Ivey has been destroyed and its dating cannot be discussed here.

Dating the open moor huts is more difficult as only one, Brown Willy East, has a direct relationship with another feature. A long pastoral wall incorporates this hut, bending slightly to respect the hut's entrance (Fig. 4). The hut is therefore contemporary with, or earlier than, the wall, whose relationship with other long walls and settlements on Brown Willy shows it to be of medieval, probably 13th century, date (Herring, forthcoming). The two Brown Willy West huts are indirectly associated with another medieval wall which runs to within 15 m of them before petering out in heavy clitter; if a functional connection is accepted, these two huts would also appear to be medieval.

The beehive hut on Loudon Hill lies just 36 m to the south of the nearest of two well-preserved long-houses, although it is clearly not within the long-house farmstead itself and is thus probably not contemporary with it. If the hut was built *after* the long-houses were abandoned it is difficult to account for the disdain shown for their ruins. Ready-made built-up corners exist and building material would be easily to hand; there are on Bodmin Moor several examples of later shelters built within the walls of abandoned long-houses (including Menadue, Brown Willy, Brown Gelly and Alex Tor). It is argued here that the builders of the Loudon Hill beehive hut did not reutilise the long-houses because they did not then exist. In other words, the hut predates them. In 1288 'Luedon' was a free tenement of Hamatethy manor occupied by Henry Cauvel (Maclean, 1873, 355); the long-houses were no doubt built by this date and, if the above argument is accepted, the beehive hut was abandoned by then.

The Fernacre beehive hut differs from those in farmsteads both in terms of its location (see above) and construction. Two large orthostats are used to form a doorway and dominate the facade. Although it is not possible to suggest a date for this hut it should at least be noted that it need not be post-medieval.

Functions — The Farmstead Huts

Most of the open moor beehive huts were of sufficient interest to be noted, at least, by 19th century antiquarians. The farmstead huts, on the whole, were not; the exceptions being passing references to those at Smallacoombe Parks and Garrow (Blight, 1868, 15; Maclean, 1873, 352), and to the Fernacre hut (Baring-Gould, 1899, 126). The lack of reference to the farmstead huts may imply that such features were seen as part of the local vernacular architecture and hence too common to be worthy of particular note.

It may now be noted that members of this group of beehive huts are found at different locations within their farmsteads, hence implying their association with different aspects of farming behaviour and farmstead related activity.

Some of the farmstead beehive huts are freestanding; others are built into farm-yard walls. Most are roughly circular in external plan, although the internal floor of the Garrow hut is oval, the Slades and Colquite examples are square, and the Leaze examples are polygonal. They are relatively small structures, offering limited internal space (floor areas vary from 1.6 m² at the smallest, Slades 2 and 3, to 7.56 m² at the largest, Smallacoombe Parks), and all lack any provision for light.

They were therefore uniformly small, quite weatherproof, dark and cool. Their entrances were low, ranging from 0.85 m at Slades 1 to 1.3 m at Butterstor 2: clearly too low for comfortable use by adult humans, but adequate for small domestic animals. Several huts, such as Leaze 2 and Garrow, have upright doorposts, but the majority of entrances are composed of drystone walling. Drilled holes at the sides of some entrances reveal that wooden doors were once used to either close things in or to keep things out. There is a noticeable lack of internal fittings in all of the farmstead huts.

Scattered throughout the ethnographic and folk-culture literature of Western Europe are many references to similar small corbelled houses whose functions relate to the domestic contexts in which they have been found. (See for example Evans, 1942, 81–84; Peate, 1944, 42; Evans, 1957, 114–125). Such works have marvelled

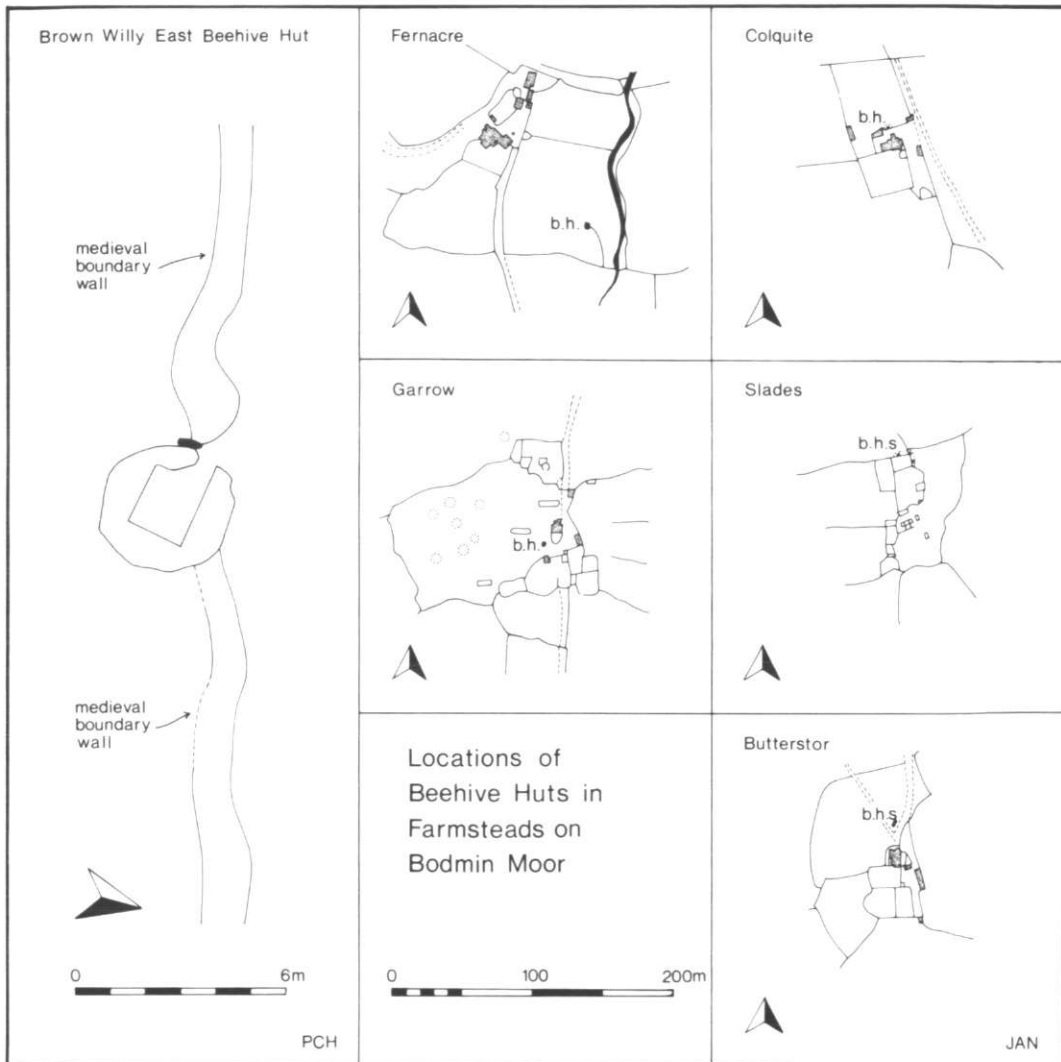


Fig. 4

The location of the Brown Willy East beehive hut and a sample of others found on Bodmin Moor farmsteads. (Base-maps for the latter are the 1880s OS 1:2500 plans).

at the architectural simplicity of corbelled beehive huts, tracing the style back through centuries of secular and religious traditions.

In upland Wales, Peate (1944, 43) noted that beehive huts were used as 'potato cellars', while on the Dingle Peninsula in Ireland it is not uncommon to see impressive corbelled beehive huts being used in this way in the centre of today's working farms. On Dartmoor, Worth (1953, 415–416) recorded such circular free standing structures as 'ash-houses', used to store ashes and embers raked from the household hearth until the time came for them to be scattered on the nearby gardens and fields. All these examples clearly belong to a domestic vernacular context. In trying to determine the functions of the beehive huts found within farmsteads on Bodmin Moor, we have to examine closely their positioning within specific activity areas on these farms.

In 1982, one of the authors (J.A.N.) carried out a behavioural study of the spatial organisation of moorland farms (Nowakowski 1982). This enabled the author to define certain activity-specific areas which were common to most moorland farms. These were identified as the *domestic area* — that in which the main dwelling house stands with its own defined boundaries and associated behaviours; the *farming working area* — an area containing specialised buildings for particular activities related to storage or the processing of fodder, and finally a *transit area* — through which people, vehicles and animals enter and leave the farm. (Nowakowski, 1982, 26–30). In order to assess the various functions that the beehive huts may have performed, it is fruitful to examine their differing locations within each of these areas.

The beehive huts at Garrow, Colquite and Candra are found in the domestic areas of their farmsteads. Each is close to the back door of the main dwelling house, the kitchens and dairies, implying a close connection with household-orientated behaviour. It is possible that these huts were used as roosting houses or small pens for domestic fowl or fauna which were kept and reared for household consumption. By being so close to the rear entrances to the kitchens and dairies, animals kept within these huts could easily be fed, as is common, with the household scraps thrown out of the houses. They may also have been used as domestic stores where root or other vegetable crops were kept in the cold and dark, ready for consumption by members of the household. They may also have been used as dairy stores (pers com N. Johnson), but their noticeable lack of internal fittings such as shelves tends to militate against primary use, or design, as butter stores. (Two butter stores have been found at Outer Pridacoombe Farm and Dryworks Farm on Bodmin Moor, but they are not built in the same tradition as the beehive huts and both contain neat slots for slate shelves). Like the Dartmoor examples, these farmstead huts could also have been used to store ashes raked out of the households' open hearths, though this practice is not known of on Bodmin Moor. Hamilton-Jenkin (1970, 351) recorded the old practice on moorland farms of farmers' wives cleaning the moorstone floors of their homes with dry sand, and it is possible that such a cleaning agent, bought from itinerant hawkers, was stored near to the dwelling houses in these beehive huts. It is less likely that these huts stored fuel, since the Cornish practice of building peat, turf and furze ricks in their own rickyards was ubiquitous and, until recently, a common sight in upland areas (Bodmin Moor Tithe Maps *passim*). The daily supply of household fuel, commonly dried peat and turf, was then taken from these yards into the houses and stored in recesses known as 'ookeners' (the wood corner) on the right-hand side of the open hearth (Hamilton-Jenkin, 1970, 353).

Three beehive huts are built into the wide bank which forms two sides of an outer yard at the northern end of Slades farmstead, and are accordingly rather distant from the farm's domestic sector. It is nevertheless clear that the huts are an integral part of the farmstead and are contemporary with it. Leaze beehive hut 1 is also tucked into the corner of a yard onto which it opens. Herring (forthcoming) suggests that these latter examples may have been used to provide temporary housing and shelter for small animals, such as young pigs or weaning calves, which could have been turned out into the yard when their shelters were being mucked out. It is equally likely that these huts may have performed a variety of other functions at different stages of the farming year, and that they were purposely placed around a yard in which seasonal activities such as slaughtering or lambing took place. Any animal dung contained and collected in these yards could easily have been transported from these areas and spread onto the nearby fields.

A well-preserved pair of turf covered beehive huts stand on the edge of the transit area into and out of Butterstor farm. There are two, now abandoned, dwelling houses on the farmstead and each household may have owned one beehive hut (we are grateful to N. Johnson for this observation). Their locations at the edge of the farmstead, with open access into the farm and out to the surrounding fields, suggests that they were used for activities that took place largely off the farmstead site. Other examples sharing this type of location were found at Smallacombe Parks, Ivey (now destroyed) and hut 2 at Leaze. Their primary functions may have been as repositories for hand tools and other smaller farming implements that were regularly taken out of the farmstead and brought back after use. Winnie James living in Bolventor today, and whose family farmed Butterstor at the turn of the century, recalls how her father had used these huts in this way, though these particular examples existed long before the James family's use of them. The practice of re-using older farm buildings is a common phenomenon which takes place on Bodmin Moor even today, and may be explained not only in practical terms but also as a cultural response to broader economic and social changes on the moor (Nowakowski, forthcoming). From the second half of the 17th century liming became very important in East Cornwall as a substitute for seasand in combating the soil acidity (Whetter, 1974, 40). It is possible that these huts stored such an important material. Their locations give easy access to the fields near the farmsteads, and butts could easily have been loaded up on the trackways beside which they stand.

Functions – The Open Moor Huts

The functions of the open moor beehive huts must also be considered in relation to their locations. The two Brown Willy West huts are on the lip of a small shelf directly below and to the west of the summit of Brown Willy (Cornwall's highest point), and the Brown Willy East hut is located on the eastern side of the hill, 20 m downhill from the major break in slope. The collapsed hut on Loudon Hill is just 50 m to the south-east of the summit from which rough pastures can be surveyed in all directions. All four huts are thus located in positions which give impressive panoramic views of pasture. All are also distant from any surface evidence of tin-working and stone-cutting (cf Greeves, 1981, 168, who notes a number of Dartmoor beehive huts built, presumably as tanners' shelters, close to steam-works).

Although in high exposed locations, the open moor huts were carefully positioned to obtain maximum shelter. The larger of the two Brown Willy West huts (1) is built up to a natural outcrop which shelters both huts from the north. The summit

of the hill itself provides shelter from the east, while a short curving wall connecting the two huts affords some protection from the west and south. The summits of Brown Willy and Louden Hill shelter the other two open moor huts from the prevailing westerlies.

The small sizes of the open moor huts make it unlikely that they were anything other than shelters used in inclement weather. The medieval herdspeople of Brown Willy would live in the long-house settlement on the western side of the hill and when out tending their herds could dash to these huts when the weather turned. Here they could stay dry and emerge occasionally to survey the stock below. It should be noted that it is at least a half-hour walk from the long-house settlement to the Brown Willy East hut. Being located on, or near, long pastoral walls the shelters would also have been easier to find in times of poor visibility.

Conclusions

Detailed recording and close contextual analysis has enabled us to shed some light on these enigmatic moorland features. It has been demonstrated that the farmstead huts are an integral part of the local vernacular context and thereby help us to develop a richer understanding of the scale and nature of upland farming economies in the post-medieval periods. The farmstead beehive huts appear to function for, and within, a household-orientated farming economy and as such may be viewed as relics surviving from a time when farming on Bodmin Moor was still, to a great extent, subsistence-orientated. These small structures will have had specific functions recognisable through their locations within the farmstead, but they were also clearly versatile buildings with the potential to serve a wide range of alternative uses. One cannot be too cautious in assigning functions to individual farm buildings. Although their physical arrangement may be more or less static, the farm itself is a dynamic unit. Successive farming occupants will utilise buildings according to their immediate needs and as changing farming strategies and practices demand, not necessarily in the manner for which they were originally designed (Nowakowski, 1982, 29). Both Peate (1944, 45) and Evans (1942, 81–84) shared the view that these types of domestic survival echo a traditional building style which is 'ageless' (Evans, 1942, 84). They further agreed that it is the versatility offered by such a constructional style that has ensured its survival. It is likely that the preservation of these features within the farmsteads on Bodmin Moor is partly due to the fact that they were reused by successive farming occupants for a variety of traditional moorland practices. The beehive huts found on the farmsteads may well imitate an older tradition of building on Bodmin Moor and this is why the open moor huts are important. They, as it has been shown, are probably much earlier in date, surviving as relics of the pastoral element in Bodmin Moor's medieval mixed agricultural economy.

Acknowledgements

Thanks are due to Andrew Fleming for the identification of the Louden Hill hut and to him and Richard Hodges for reading and commenting on earlier drafts of this paper. Thanks also go to Nick Johnson, Peter Rose and Ann Preston-Jones for their comments and help. This study could not have been carried out without the patience of the farmers who granted the authors access and permission to record the huts, and to Mike and Pauline Matthews for providing the authors with such hospitable accommodation amid the inhospitable hills. We would also like to thank Winnie James and many other moorland folk who took the time and trouble to answer endless questions about moorland life: we both hope that this study sheds a little light on many of their queries.

Penzance

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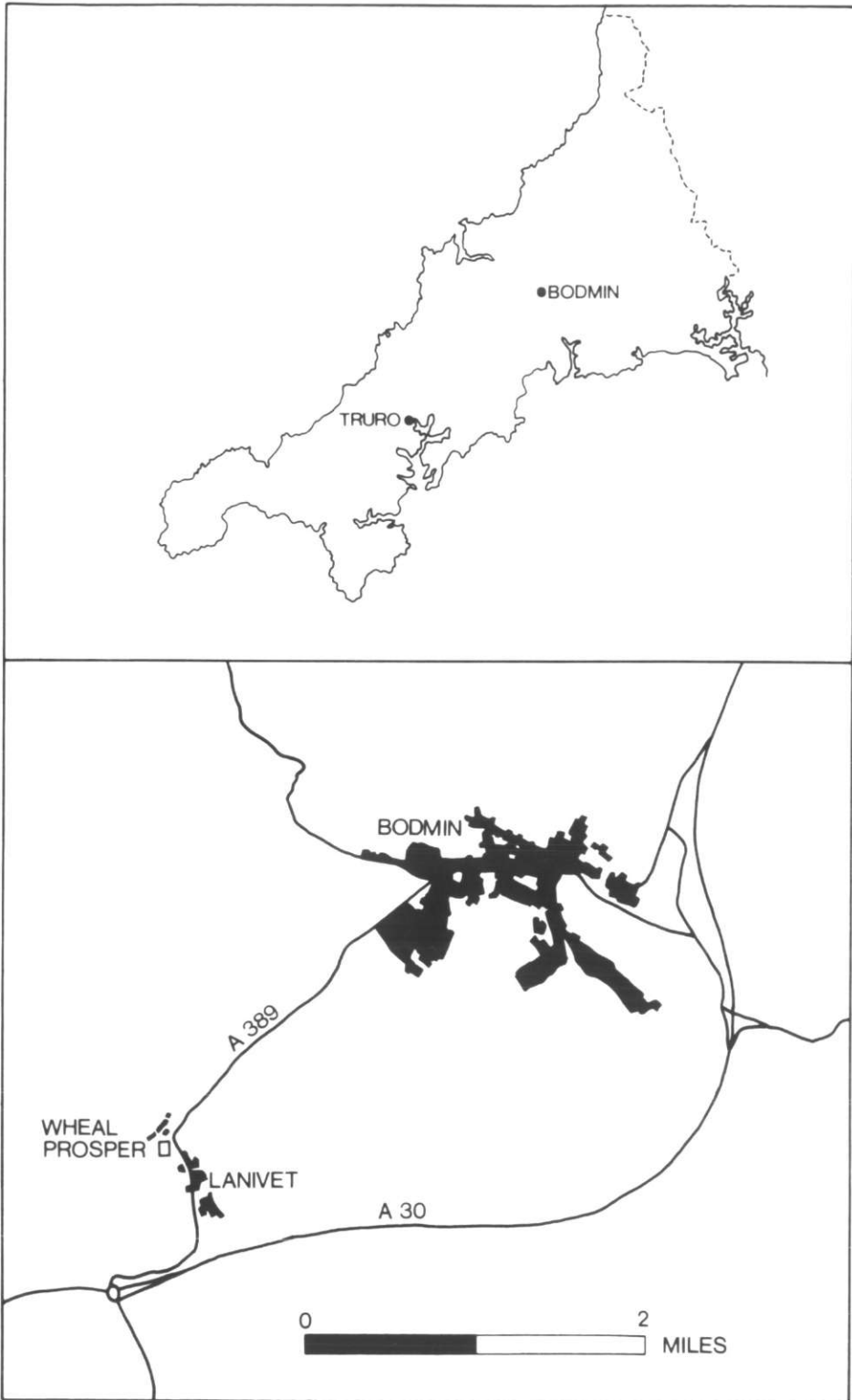


Fig. 1
Location map.

Archaeological Survey and Excavation at Wheal Prosper Tin Stamps, Lanivet

SANDY GERRARD *and* ADAM SHARPE

A tin-processing works associated with Wheal Prosper, Lanivet, near Bodmin, was investigated, surveyed and partially cleared prior to destruction. The remains were relatively well-preserved, representing the tramways and water-works associated with the crushing and separation works. Two processing areas were identified and a small sample of the tin-slimes analysed.

Introduction

Following notification that Scheduled Monument Consent had been granted for the removal of the tin stamps standing at Wheal Prosper, Lanivet (SX 035644), (Fig. 1) to the Mining Museum at Geevor Mine, the Cornwall Committee for Rescue Archaeology carried out detailed survey and limited excavation of the monument and its immediate surroundings.

The processing site formed a compact area adjacent to the valley bottom on the west side, and was served by a short access track leading from the minor road linking Lanivet to Roche (this road had formed part of the turnpike to Bodmin). On the crest of the hill, some 750 m from the processing floor lay the massive openwork: Wheal Prosper. Connection between the two was afforded by a tunnel linking the lowest level of the quarry to the back of the stamping area, and in consequence of intentions to utilise the openwork as a Council dumping area, a brief visit was made to the higher end of the access tunnel, and a cautious exploration of the upper reaches of the tunnel made.

It was immediately evident that a great deal of the surface remains in the processing area had already been lost to survey by the recent bulldozing of what proved from later information to be the whole of the leat system, together with parts of the header pond, and a high proportion of the embanked tramming way, in the area adjacent to the stamps. Examination of Ordnance Survey Sheet 34/9, 2nd Edition, 1907, indicated the approximate position of these features, and in Fig. 2 they are illustrated by dotted lines.

Prior to clearance, the extant sections of the site were covered in extremely dense coppiced willow, blackthorn, bramble and bracken, and it was only with some difficulty that it was possible to gain access to the stamps themselves. In this portion of the site, limited exploration indicated remains of collapsed sheds, tail-races and the stamping machinery, all contained within an area surrounded on all sides by high banks. This preliminary investigation was so encouraging that the decision was made to clear the vegetation and survey the entire processing area. Permission to survey and to remove the vegetation cover was obtained from Mr D.M. Burnett, the owner of the site.

It soon became evident that beneath the jungle-like overgrowth there survived in a relatively intact form the largest part of the dressing floors, including buddles,

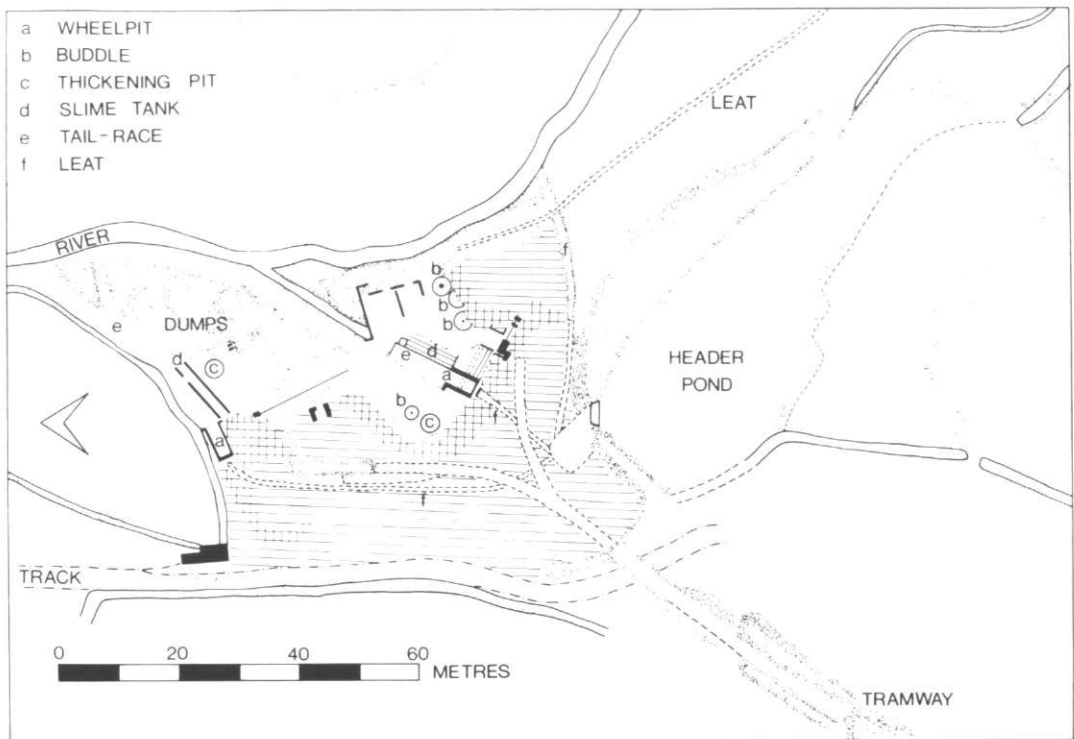


Fig. 2
Plan of the tin processing area.

settling pits, tail-races, slime tanks and the concrete machine-bases of the processing shed, and although the northern end of the site had been buried in bulldozed soil, it appeared that the major part of the context for the stamps was accessible for survey.

Surveying operations were carried out using plane-table and microptic alidade to produce a 1:500 survey (Fig. 2) of the wider surroundings of the processing area, and included the waste dumps, the header-pond, leat extensions, and the remnant lower end of the tramway. The site of a second set of stamps and water-wheel, although partially obscured by fill was also included in the area covered by this plan. Dumpy levels, referred to a local Datum point, were taken for significant site features.

A second survey (Fig. 3), again by plane-table and alidade, although this time at 1:100 scale, was made of the area immediately around the stamps and processing shed, and again site levels were established.

In addition to these two plans, a site cross-section was drawn and a large number of scale drawings of the stamps, water-wheel, shafting and the few finds that the site afforded were made. A total of 51 black and white 6 x 6 cm negatives and 75 35 mm colour slides form a further aspect of the site record.

Survey Results

Survey operations were confined to the processing area connected with Wheal Prosper mine, with no work being carried out in the vicinity of the extraction site.

The tramway, header-pond and environs (Fig. 2)

This area was surveyed at a scale of 1:500 to examine the character, extent and relationships of the features immediately adjoining the site to the west and north of the principal processing area. It was judged to be inappropriate to survey the relatively undamaged western portion of the tramway, where the embankment stood up to 8 m high; this area being thickly covered in dense, mature vegetation, and under no immediate threat. At the northern end of the area, however, recent clearance operations had obliterated almost all traces of the eastern extension of the tramway: only a pile of granite revetment stones remaining. The northernmost end of one branch of the tramway still remained as a substantial stone-revetted embankment, 5 m broad at its base, and with a 2 m wide roadway on the top. There was no sign of tram rails here, although a side-tipping ore tub was found some distance up the unsurveyed part of the tramway. It is known from an oral source that in the most recent phase of working the ore was transported by horse and cart along the bed of the tramway.

The site of the header pond was identified from the 1907 Ordnance Survey map as lying in what had become a pasture field to the south of the site. The area appeared to have been infilled and improved, but it was possible to trace the outline of the pond itself by following slight contour and vegetational changes. The site of the sluice gate, although now blocked off, showed as a distinct change in the field boundary.

The complex relationships of leats and tramway spurs in the bulldozed area could only be gauged from earlier Ordnance Survey maps, and examination of these, and of aerial photographs of the area, revealed traces of lost structures whose extent and function could only be guessed at without more precise documentary evidence.

The area adjacent to the northern wheelpit (Fig. 2)

In view of the rather fragmentary remains, it was felt judicious to survey this area at a scale of 1:500 only. The northern edge had been overlain by a massive dump of bulldozed rubble, which had obscured details of feeder-leats, stamps and related structures which were inferred to have been present from the information given in earlier maps, and from the presence of a partially infilled wheelpit, a slime tank and tail-race leading from the base of this dumped material. The detail on the 1907 Ordnance Survey map, although rather sketchy, would seem to indicate the existence of stamping machinery occupying about half the space of that to the south. It is thus likely that a set of six or eight stamps operated here, driven by a tall, narrow wheel. A sample of material from the presumed slime tank indicated a tin content of 0.697%, and this relatively high level supported the contention that this was a stamping site.

Immediately to the south of the slime tank was a circular pit of blockwork construction. This had a spillway outlet back towards the slime tank, and was filled to a depth of 1 m with extremely fine slimes. A tin content of 0.431% supports the suggestion that this was a thickening pit. To the south of this pit, and partly overlain by dumped material, was a concrete structure of two parallel walls. Whilst probably a machine base, it was not possible to be specific about its function.

The dumps surrounding this area were notable for the extremely steep angle of the sides, in places approaching the vertical. There seemed to be no traces of stone revetting to support this steepness of slope, and it appeared that it was the firmness of the clays, of which they were composed, that was responsible for their profile.

Along the top of these dumps, a raised lip or rim to the northern and western sides may give a clue to the *modus operandi* of this rather cramped site. It is likely that material was transported in barrows rather than in carts or wheeled tubs, and that the finer grades of waste were initially dumped to form the edge of the burrow, which was allowed to consolidate before the centre was filled with coarser material. The rim which survived may well have been a remnant of this process, which seems to have allowed the operators to optimise the available space.

Between the northern and southern areas of the site, communication was kept open through the areas of dumps by means of two trackways. One track appears to have led to the ruined remains of what we learned from a local source to have been the crib-hut (for sheltering, eating lunch and storing tools), and continued on to give access to the northern stamps. Another, lower track descended to the northern dressing-floor, and it is likely that some of this area remained in use for processing throughout the operating life of the works.

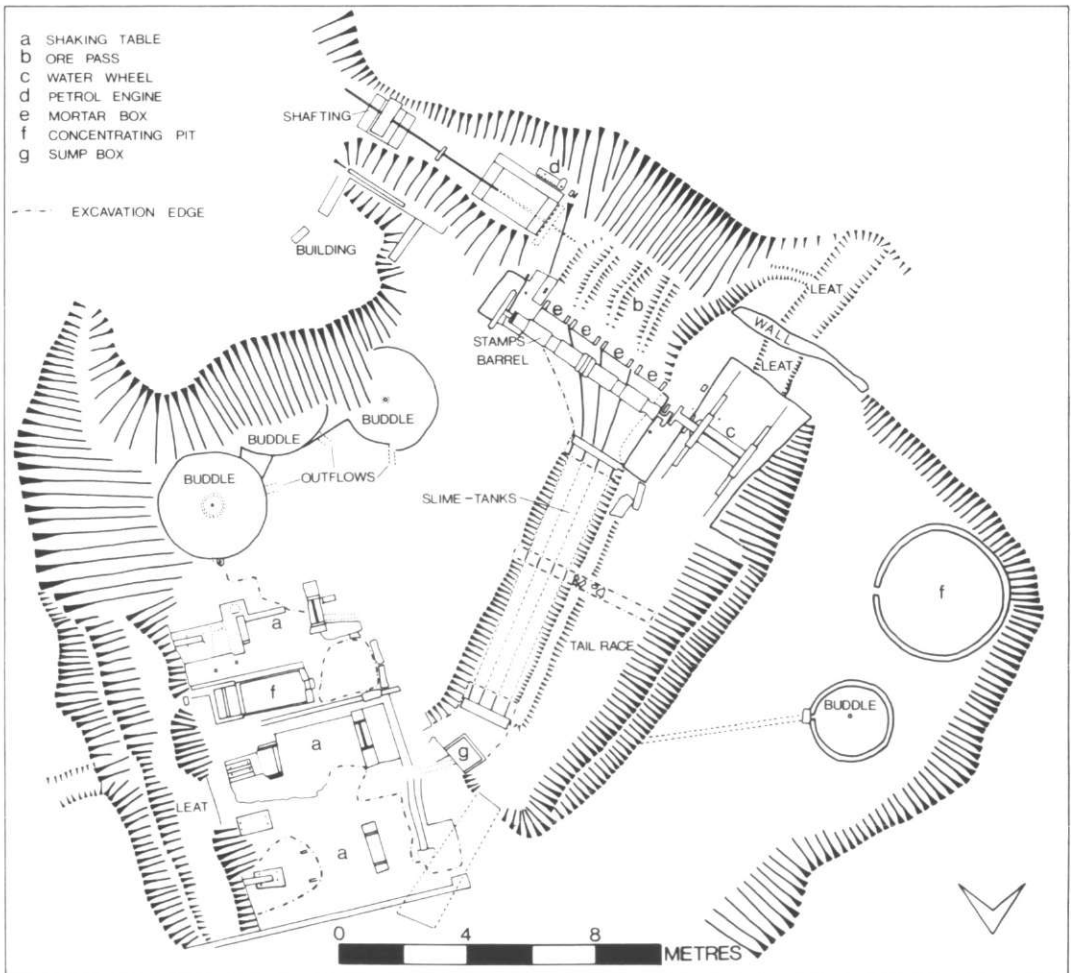


Fig. 3
Plan of southern processing area.

The southern part of the site (Figs. 3, 4, 5 and 10)

Within this area there were many complex structures, and in order to do them justice, an additional 1:100 survey was carried out. The area was dominated by the upstanding stamping machinery (Fig. 4), and by its associated water-wheel (Fig. 10), which sat in a substantial pit, revetted with drystone. Detailed drawings of the machinery are included, and details concerning their character are included in the Technical Summary.

In summary, the main aspects of the process visible on the site were: the *ore pass* (Fig. 6), down which the broken ore was tipped, feeding into four separate *mortar-boxes* (Fig. 7), in each of which four cast-iron *stamping-heads* on wooden *lifters* (Fig. 9), operated by the *cams* of the *stamps-barrel* (Fig. 8), crushed the ore. Water was fed in to facilitate the stamping process, and the channel leading away from the main leat feed could be traced towards the back of the ore-pass. Once the ore was crushed, it passed in suspension from the mortar-boxes through a *grate*, or *screen*, and into concrete-based, timber-lined *slime-tanks*. Once these tanks were filled with material, it would have been dug out and taken for further grading and concentration.

The *buddles* (settling/ore concentrating tanks) and *shaking-tables* would have formed part of this final processing. Documentation for these stages of the process are readily available, and are consequently not repeated here (Earl, 1968). The remains of four convex buddles were found, two of which were partially buried beneath recently bulldozed material. Outlet channels from three of these buddles led underground, presumably emerging near the slime tanks, but the course of such underground channels could not be determined in the time available for survey. The fourth buddle, associated with a thickening pit, sat on the shelf above the tail-race, adjacent to the water-wheel, and its outlet pipe discharged into the tail-race.

The three shaking-tables and single rectangular concentrating-pit sat in the north-eastern end of the site, and had at one time been within a corrugated-iron shed, parts of which littered the site. The timber parts of the tables had either been removed from the site at the sale of materials in 1955/6, or had rotted in situ. Only slots in the concrete supports survived to show where the bed timbers had previously rested. A fragment of vibratory table spring was found in this area. The source of water for the buddles and tables would seem to have been a leat, probably timber-lined, lying on a terrace cut into the back wall of the building, but the source for this channel could not be determined because of the effects of recent destruction. The power source for the equipment in this area may have been the six-cylinder, side-valve petrol engine which sat adjacent to the shafting at the southern end of the site, although the crankshaft, flywheel and piston-fragment of a two-cylinder, horizontally opposed oil engine remained on site, and is likely to have been the earlier form of power.

The processing shed had previously occupied a smaller area when surveyed in 1907, and was extended in such a fashion as to necessitate the construction of a tunnel to carry the southern tail-race under the building. It is likely that all traces of the earlier building would have been obliterated by the re-building process.

From the concentrating equipment, waste was carried along channels to a sump-box where heavier material would be allowed to settle before retreatment. The remainder of any material in suspension, and the waste water were discharged into the tail-race, and hence to the river. The black tin extracted from this process would then be dried and bagged; a fragment of cask-head found on site might well indicate

the containment method. It would have then been transported for smelting. The location of the area where this took place could not be ascertained, but production figures for the period 1861–1913 (Table 1) indicate the character of output.

Table 1

Wheal Prosper, Lanivet — Mineral Returns: 1861–1913.

<i>Year</i>	<i>Black Tin (tons)</i>	<i>Value (£s)</i>	<i>Year</i>	<i>Black Tin (tons)</i>	<i>Value (£s)</i>
1861	6.30	441.50	1890	20.70	1238.00
1862	16.80	1085.20	1891	No detailed return	
1863	9.40	586.40	1895	6.00	232.00
1864	3.10	192.10	1896	7.00	200.00
1865	0.80	40.20	1897	5.20	194.00
1870	37.30	2601.00	1898	2.00	95.00
1871	39.50	3035.70	1899	3.60	262.00
1872	5.50	436.60	1900	8.90	704.00
1874	11.30	621.90	1901	5.50	477.00
1878	16.60	550.70	1902	7.90	560.00
1880	17.60	894.80	1903	8.60	690.00
1881	17.40	942.20	1904	5.50	400.00
1882	20.60	1170.00	1905	7.50	700.00
1883	52.00	2833.00	1906	7.00	736.00
1884	34.30	1593.00	1907	7.50	835.00
1885	14.00	682.00	1908	7.50	585.00
1886	19.40	1102.00	1909	8.20	625.00
1887	15.10	944.00	1910	7.50	675.00
1888	22.30	1554.00	1911	6.50	700.00
	(includes 14.70 tons 'tin')		1912	6.50	800.00
1889	22.60	1269.00	1913	9.70	1230.00

Ownership Details

1878	Mulberry and Prosper Mine Co
1880–1881	Prosper and Mitchell Mining Co
1882–1883	Wheal Prosper Mining Co Ltd
1884–1891	John Leys

Source of Information: Dr R. Burt, BSc, PhD, University of Exeter collected statistics, 1985

Excavation Results

Excavation was limited to three trenches across the southern slime tank; one across the tail-race and ore pass; a single mortar box; and clearance of a large part of the processing floor. The purpose of this work was to examine in greater detail these important components of the site and allow a mineralogical sampling strategy to be drawn up and executed. In these aims the excavation proved successful and the details are considered below. The position of the excavated areas are indicated on Fig. 3 by dash and dotted lines.

The ore pass and mortar box (Figs. 6 and 7)

A trench was cut at right angles to the ore-pass and a single mortar box was excavated to reveal the character of these features. Figs. 6 and 7 show the nature of the evidence found, and the main elements were: a level of rammed hardcore and scrap iron, three levels of wooden planking overlain by a mixture of rock and loam which in turn was below a depression filled only with brown loam. The wood may indicate three separate attempts to cover the floor of the ore pass, or they may have been laid at the same time to prevent the surface being damaged by the weight of ore passing over it. The rocks above this floor may have been ore that had not passed through the stamps and the depression filled only with brown loam was probably the true shape of the ore-pass at the cessation of operations, with the ore passing down this hollow and the material below remaining lodged behind the stamps. In the mortar box the removal of brown loam and vegetable matter revealed

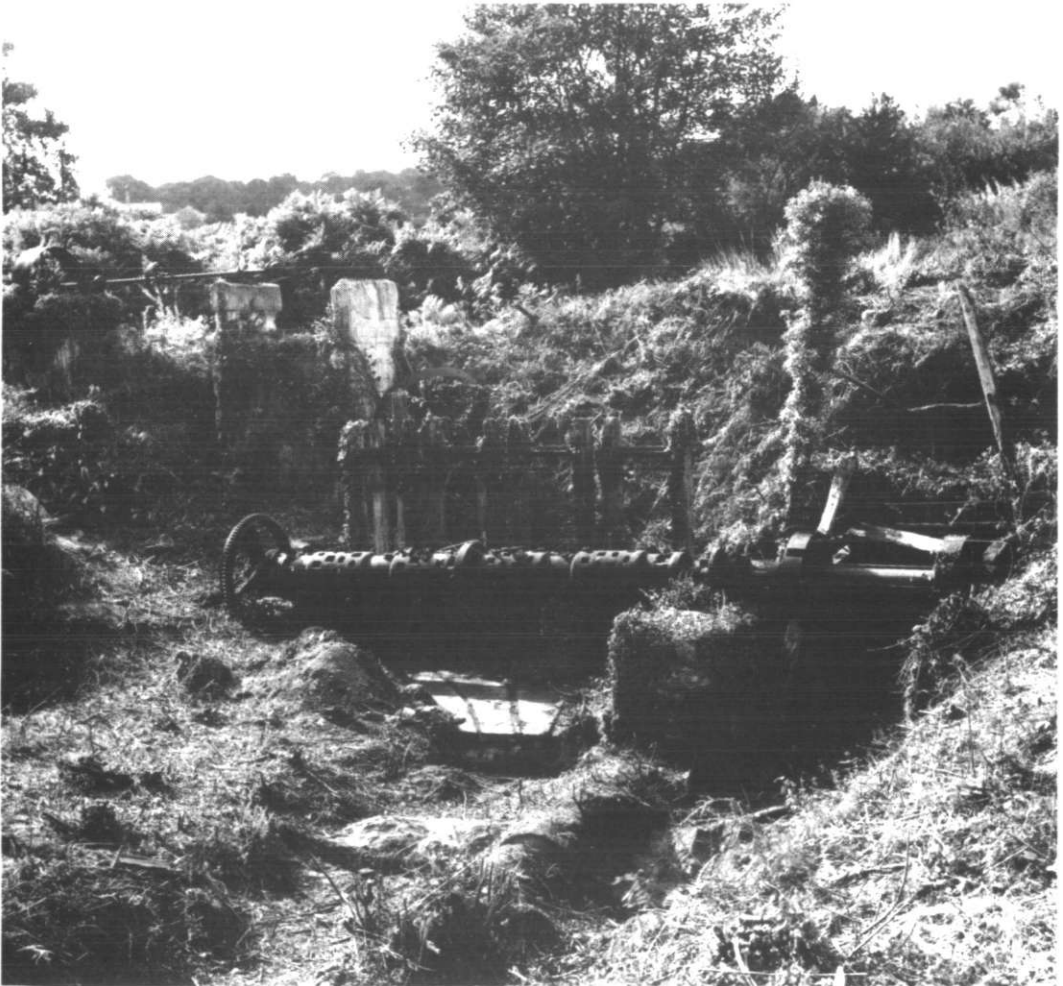


Fig. 4
The stamping machinery viewed from the north.

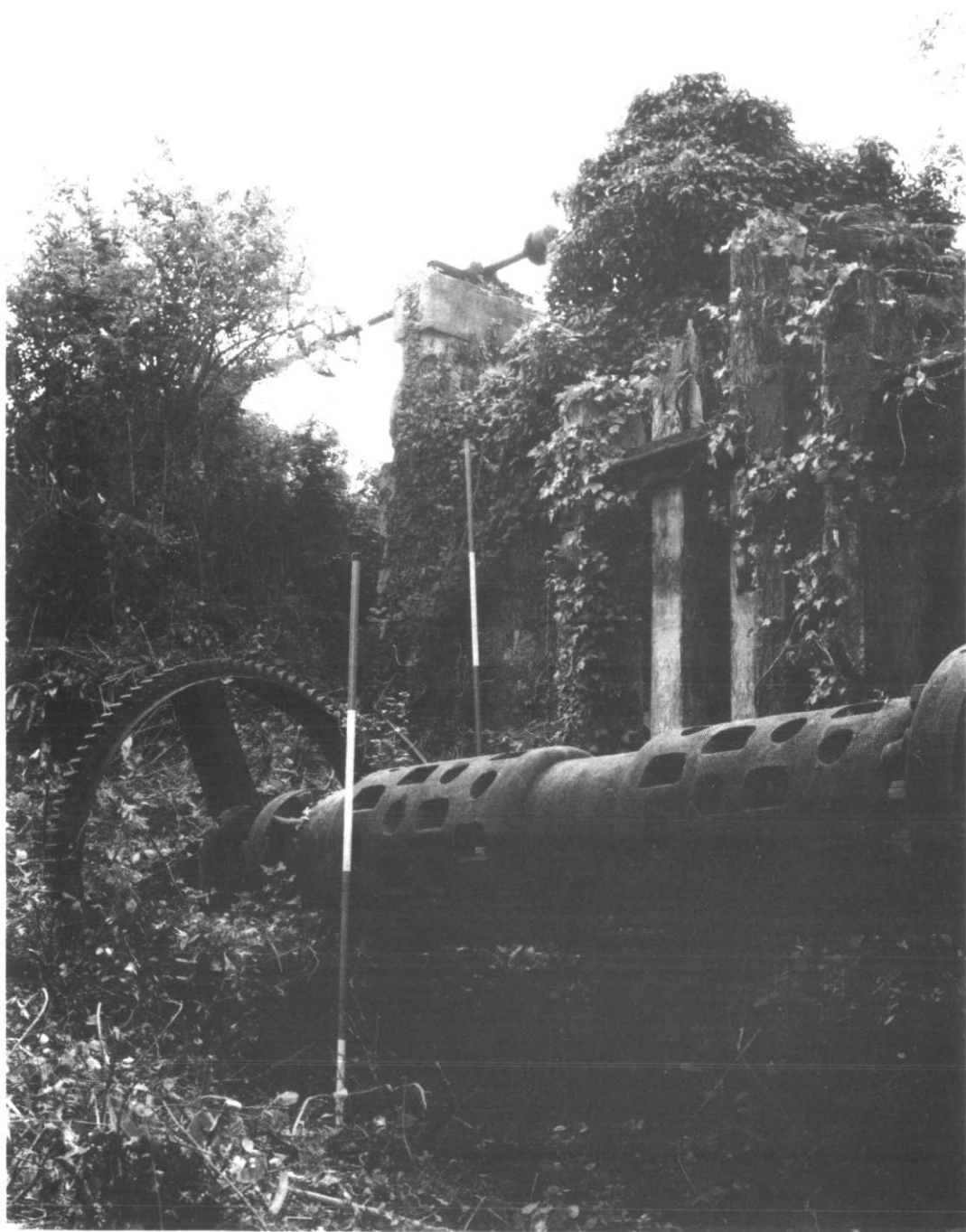
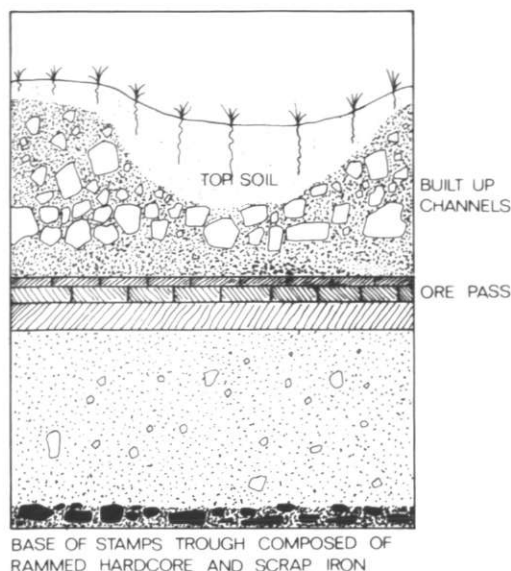


Fig. 5
Detail of the stamps barrel.

a level of rammed hardcore and scrap iron, and this was the bed against which the ore was crushed by the stamps falling from above.



ONE METRE

Fig. 6

Cross section through ore pass.

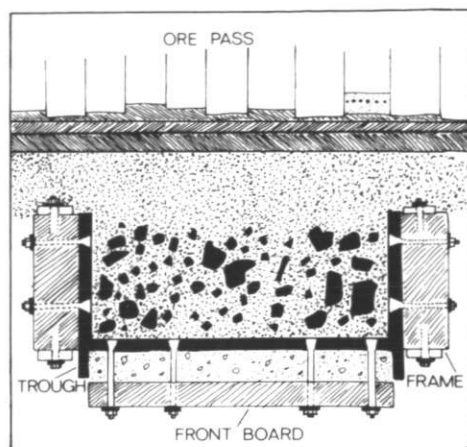


Fig. 7

Cross section through mortar box.

The slime-tank and tail-race (Fig. 11)

Three trenches were cut across the slime-tanks, but only one of these was extended to cross the tail-race. Excavation of the slime tanks revealed that its base was of concrete, with two slots measuring 40 mm deep by 40 mm wide running parallel along its entire length. The base was not level, but slightly convex. The feature was filled with grey clays and orange-brown gravels (Fig. 11). The elongated slots would have contained timber partitions and with similar barriers on each of the sides, three separate tanks lying parallel to each other would have received crushed ore in suspension from the stamps. The position of the outermost timbers was indicated by narrow vertical changes in the fill, which was probably caused by the partitions being removed and slightly different material slipping into the resulting hole (Fig. 11). This sub-division suggested that each of these slime tanks could be cleared separately and were probably filled individually, with some form of sluice directing the material from the stamps into a single tank at a time. The slime tanks sloped gently from the stamps and this would have enabled primary separation, since the heavier cassiterite deposits would have settled out at the upper end. Water carrying little or no waste probably escaped from the slime tanks into the tail-race by means of a sluice situated at the lower end. An iron sluice gate frame found close to the lower end of the slime tanks may have carried out such a function. To establish whether primary separation of the crushed ore had in fact occurred within these tanks, a soil sample was collected from each of the excavated trenches, and the amount of tin in each was 3.74% (the upper), 0.195% (the centre) and 0.179% (the lower). The amount of residual tin thus fell dramatically with distance from the stamps, and this confirmed that separation must have occurred within these tanks.

One of the excavated trenches (Fig. 11) revealed that the material filling the easternmost tank was markedly different in character from the others, and it may

well indicate that this channel was not cleared of residue when processing operations ceased.

Excavation of the tail-race indicated that it was 1.7 m wide by 0.9 m deep and was lined on the eastern side by a drystone revetment and filled with a mixture of stones and gravels. The western side was defined by a large platform composed of stones and gravel, and no trace of a revetting wall could be found, though there may have originally been a timber one.

Processing floors

Strictly speaking, this area was cleared rather than excavated, since only the turf and topsoil which had accumulated over the past three decades were removed. Clearance was limited to those parts where earthwork evidence suggested that there might be structures, and consequently the process was far from complete, some areas being left untouched. This work, however, did reveal the basic character of the concrete machinery bases, and if clearance had not occurred this would not have been possible.

Technical Summary

Stamps barrel (Figs. 5 and 8)

Cast-iron, 0.065 m thick in the cam sections. The barrel at Lanivet consisted of two identical castings end-bolted together by a flanged coupler. Each casting drove eight heads of stamps in two groups of four each. For each lifter position on the barrel there were five cam-sockets of rectangular section, and opposed to each of these holes a conical section knock-through hole. The cams themselves had all been removed for scrap, but one of the wooden packing wedges that held these in place was found on site. At the south-east end of the cam barrel, a crudely-fabricated 1.44 m diameter steel wheel had been attached to the end-square, and fitted with forged gear-teeth in sections. A pair of plummer-blocks were found set into a concrete plinth adjacent to, and behind this wheel, and is assumed from their positioning that they contained a gear wheel and drive, though the function of this drive is unknown.

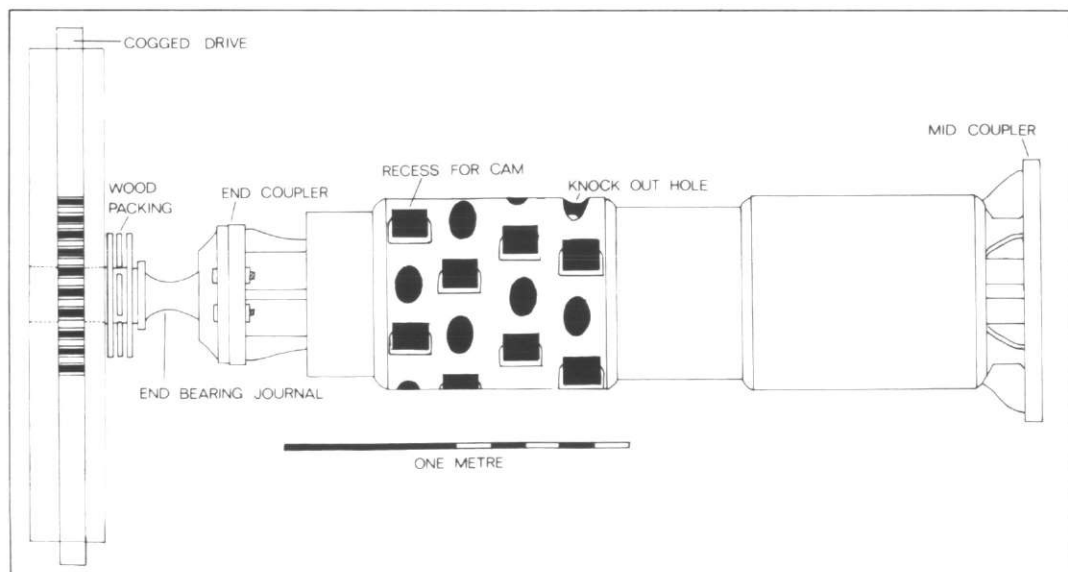


Fig. 8
Stamps barrel.

Stamps frames (Figs. 4 and 9)

Four sections of frames, each set of frames carrying four lifters of 0.28 m square oak, the last to be erected in Cornwall. The frames themselves standing 1.55 m high of 0.12 x 0.4 m of mixed timbers, the pattern of the heads of these frames varying greatly. Cast-iron stamp heads, all now

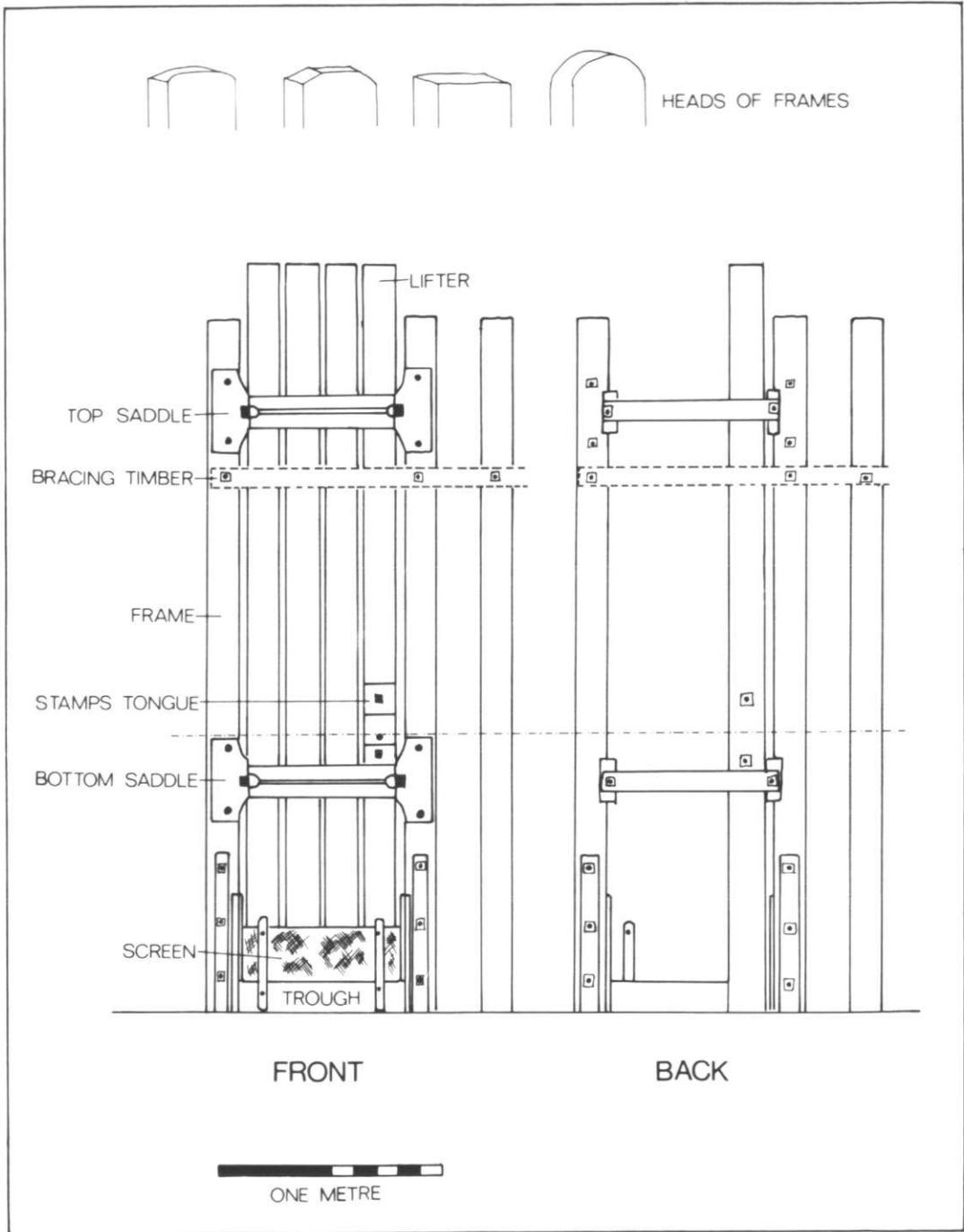


Fig. 9
The stamps frame.

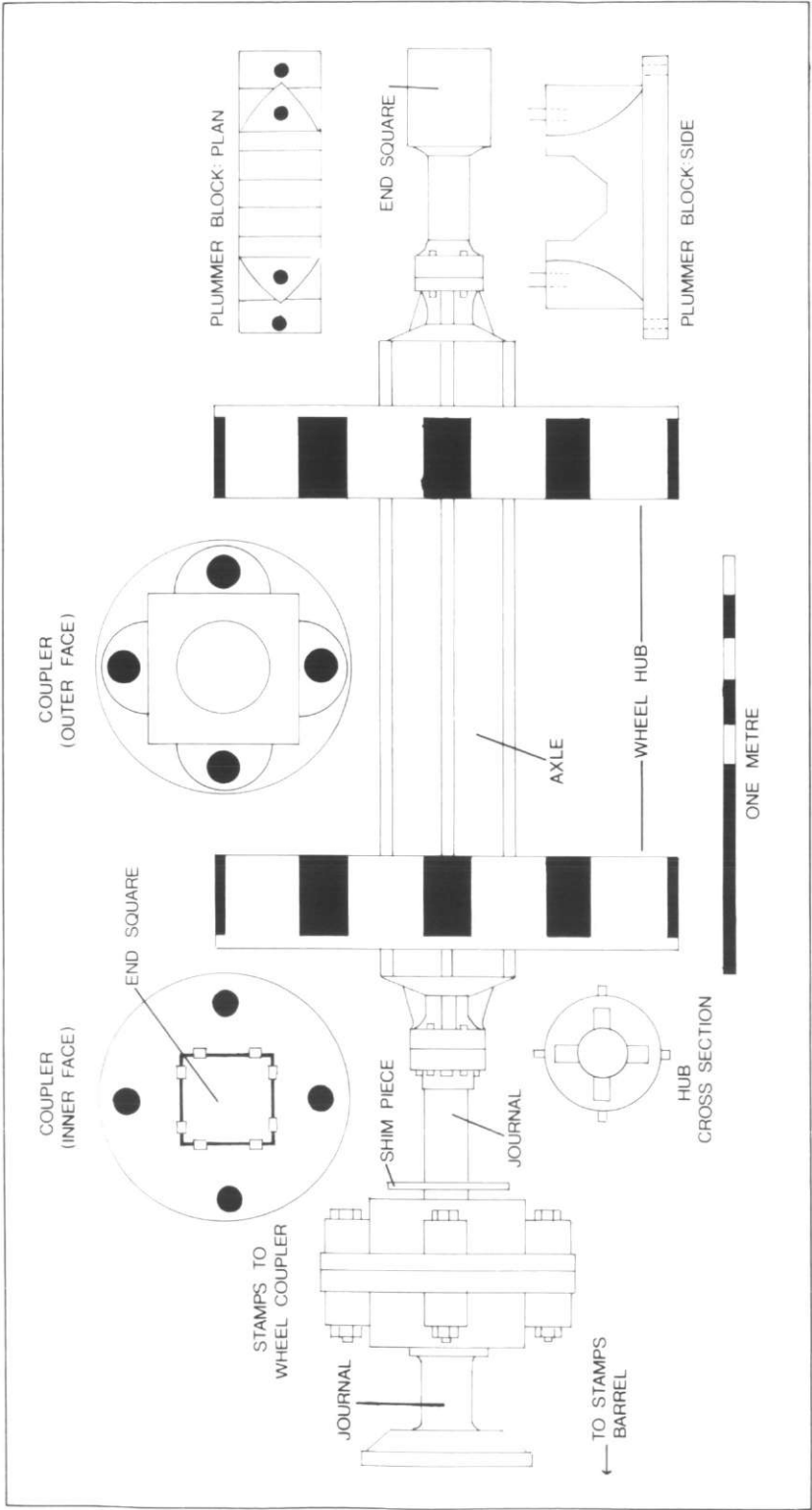


Fig. 10
Water wheel axle and hubs.

removed for scrap. Cast-iron saddles, top and bottom, four different patterns in all, all unprovenanced, there being no founder's name on any of these items. The saddles showed signs of heavy wear, and on at least one of these, the back plate had been turned to proffer an unworn surface to the apparently ungreased lifters. The stamps' tongues had virtually all been removed for scrap, although the attachment for one remained in situ, although damaged. The mortar-boxes consisted of a simple trough-front integral with cheek plates, the whole acting as a bottom tie for the frames. The bed of this trough was composed of crushed and rammed quartz and scrap-iron in a hardcore matrix.

The four sets of frames were tied to each other front and back by longitudinal timbers, and braced fore and aft by steel rods.

Launder

Now not visible on site, appears to have been a wide and shallow timber construction, held on vertical baulks.

Water-wheel (Fig. 10)

Built by Oatey and Martyn, Wadebridge. 4.5 m diameter, 1.2 m width overshot. Eight shroud sections, each carrying eight 30 degree wooden paddle-blades. One 0.18 x 0.1 m wooden spoke per shroud segment, end-shimmed to length with wooden wedges. Two tie rods fitted per shroud section. Shrouds coupled with cast-iron fishplates 0.21 m wide each, each carrying four bolts. Timber bucket closers. Hubs: 1.09 m diameter x 0.22 m thick keyed onto 4-splined cast-iron axle of circular section, 0.32 m diameter. 0.2 m square ends fitted by bolted flanges. 0.56 diameter x 0.18 m wide end-coupler fitted to square at stamp end by steel keys.

Small water-wheel

Maker unknown. Cast-iron. Diameter 0.65 m (approx). Paddle blades and bucket closers probably of wood. Twenty paddles (?).

Oil engine

Twin-cylinder, horizontally-opposed or vertical layout. Bore: 17.5 cm dia, Piston area: 240.53 cm², Stroke: 18 cm, Capacity: 8.64 litres total. Crank-shaft (fitted with conical clutch) and piston fragment only found. Flywheel: cast-iron, 0.93 m diameter, 0.14 m width at the outer edge.

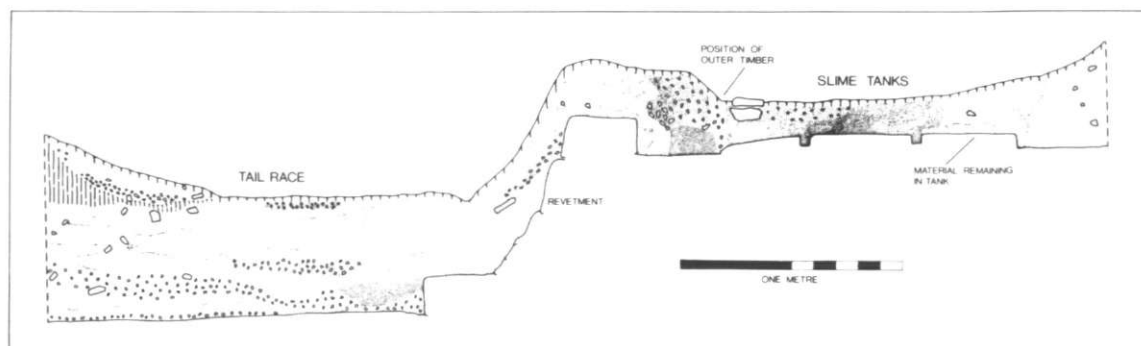


Fig. 11
South facing section across slime tanks and tail race.

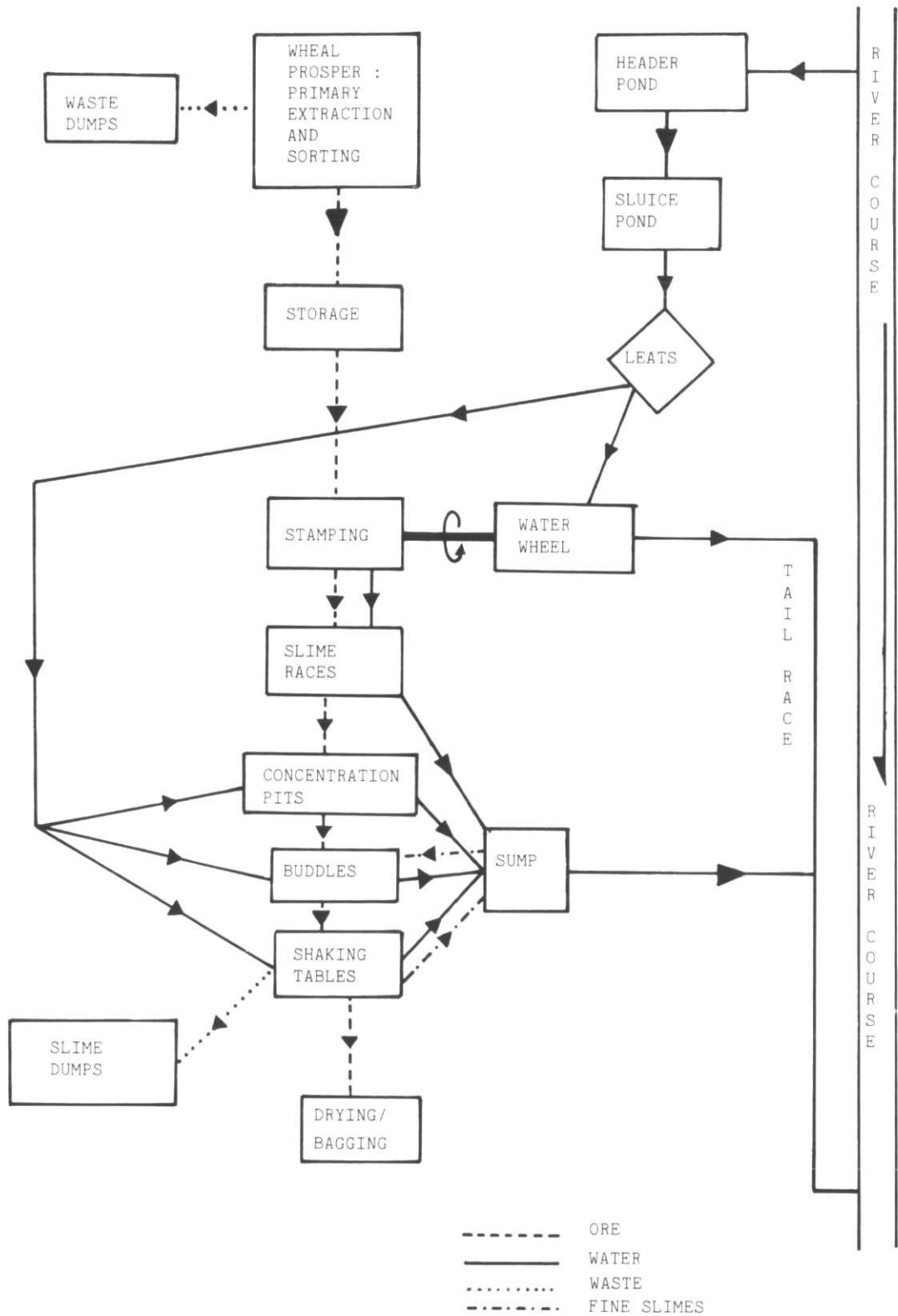


Fig. 12
Simplified flow diagram of processing operations.

Belt-drive shafting

(Upper set). Mounted on concrete plinths set above the stamping area, and appearing to serve a now-demolished concrete building adjacent to the NE. Four wheels of 1.12 m, 0.53 m, unknown (broken), and 1.53 m diameter, the outer pair being dismantlable steel wheels, the inner pair of cast-iron. It is assumed from its position adjacent to these that the nearby petrol lorry engine drove the largest of these wheels, and power transmitted by dog-clutch to now lost machinery.

(Lower set). Three built-up steel wheels of 0.57 m, 0.6 m and 0.55 m diameter. These were housed in the processing shed, and would presumably have transferred power from some now unknown source to the shaking-tables.

Shaking-table spring

Diameter: 0.09 m. Length (broken) 0.05 m.

Conclusion

The recent bulldozing of the site combined with the action of vandals over the years has made it impossible to produce a full survey of this compact site. In places, the walls of buildings of unknown function and extent protrude from the spoil, in others the evidence has been totally obliterated, as witness the sluice-pond which was attached to the header-pond, and from which water feeds were taken. The courses of many of the leats, and parts of the tramway can only be inferred from earlier maps, and there was not time to collect the oral evidence which might have helped explain some of the odder aspects of the layout.

Nevertheless, a picture has emerged of a small but productive site (Fig. 12), which has undergone several periods of use, the focus of emphasis changing from the north to the south, and including some degree of re-building and resiting of equipment.

In retrospect, it is obvious that this site should have received the attentions of a surveying team before the demolition of the now missing structures. It would then have been valid, we feel, for the whole area to have been developed as an open air museum, which would have demonstrated most aptly the process of tin-extraction. However, in its present state, we can only welcome the efforts of Geevor mines towards saving some part of Cornwall's industrial heritage.

Acknowledgements

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Arbroath, Angus and Truro

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Bodmin Priory

Traces of walls and burials were seen when machines were excavating under the car park of the District Council offices at Priory House. The Cornwall Archaeological Unit was commissioned by the North Cornwall District Council to examine the site while it was still open. The remains uncovered were those of the north-west corner of the Priory Church. Evidence for four principal phases of activity were uncovered.

The church was originally an aisled building of late 12th or 13th century date. The excavation was principally in the remains of the once stone-vaulted north aisle, but in the wider eastern part of the trench, the foundation wall of the arcade which separated the aisle from the nave of the church was also discovered. Sitting on this was a large square block of stonework: possibly the base for one of the arcade columns. Outside the west end, the stone-built graves are probably of the same date.

In the 15th century a western tower was added. The massive foundation running north-south, is probably the foundation for this tower. On top of the foundation, the polygonal slate plinth probably supported the north side of the arch giving access from the aisle to the tower. Other evidence — the description of Mr Douch's 1965 excavation in the *Cornish Guardian* — indicates that there may have been other substantial rebuilding at the east end of the church at this time.

After the Reformation, c. 1540, it is most likely that the church was converted into buildings for secular use. The small wall blocking off the west corner, and the fireplace in the north wall, are probably of this period. It is also likely that the thinner wall sitting on top of the cut-down north Priory wall further east also represents a post-Dissolution rebuilding, for the column base which it incorporates is set at a very odd angle. Also post-Dissolution is the tile-built furnace at the south-east corner of the excavation. This is likely to have been a reverberatory, used in casting metal. This furnace is one of only a very few in the country and may therefore be one of the most significant finds of the dig.

Also of considerable importance is the fact that evidence was found for Dark Age occupation, pre-dating the construction of the Priory buildings. Particularly at the west end, underneath the nibble out of which the sarcophagi were formed, pieces of characteristic grass-marked pottery were found, on an old land surface. Unfortunately, the full significance of this pottery, which in any case was not found until a relatively late stage in the excavation, was not realised until the dig was finished, and so any associated features were never fully explored. They remain for the future.

St Just in Penwith

Patrick O'Hara

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